THE LANCET.

No. 4538. Vol. CLXXIX. LONDON, SATURDAY, AUGUST 20, 1910. Pp. 144.

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Presidential Address
ON
STRAIN.

Delivered at the Annual Meeting of the Ipswich Medical Society

BY SIR LAUDER BRUNTON, BART.,
M.D. EDIN., F.R.C.P. LOND., F.R.S.,
CONSULTING PHYSICIAN TO ST. BARTHOLOMEW'S HOSPITAL.

GENTLEMEN,—The subject I have chosen for my address to-night is that of strain. We are quite familiar with strain in inorganic bodies. If we tie one end of a string to a fixed support and load the other with increasing weights the string will become more and more tense and by-and-bye will break altogether. If we twist a piece of wire it yields to a certain extent, but by-and-bye breaks off. If we lay a bar of wood or iron upon solid supports and then compress it by increasing weights, or by hydraulic press, it will bend somewhat and will finally break. If we pass a current of electricity through a wire we will for a time observe no change, but as the strength of the current increases the wire will become hot, and presently, if the current is too powerful, it will melt altogether. In every case the final breaking of the string, wire, bar, or conductor is due to an excess of the work which each of those bodies is naturally intended to perform.

STRAIN OF TISSUES AND ORGANS.

The same holds good with the tissues and organs of the human body. In a railway accident, if a limb is caught between two pieces of woodwork and its ends pressed in different directions, the bones are snapped just as they would be in a testing machine. If any one of us were to slip on a greasy sidewalk, so that our foot twisted to one side and the whole of our weight were thrown upon the ligaments of the ankle-joint, they would be strained, or, as we usually express it, sprained. Now, I think there is a certain difference between strain and sprain. It is one of degree and not of kind. If the twisting of the ankle were only slight there would be a certain amount of pain on using the joint, but there might be no swelling and little or no tenderness on pressure, whereas both of these symptoms usually are present when the twisting is so severe as to produce what we term a sprain. Yet even a slight strain, which gives no other evidence of its presence than a little pain on exertion, may last for a long time, and each time a fresh demand is made upon the ligaments the pain is again felt.

A severe and sudden strain may cause complete rupture of a muscle. A less severe strain causes muscular pain and tenderness, sometimes very acute, and usually lasting two or three days. This condition gradually passes off, and in a short time the muscle becomes inured to greater exertion, and is then capable of more powerful and long-continued contraction without fatigue. Indeed, repeated exertion within moderate limits causes a muscle to grow, or, as we ordinarily term it, to become hypertrophied. Its contractile power and its nutrition are both greatly increased by the exertion it is called upon to make, but if the exertion be too great, and especially if it be too long continued, a different result ensues, and atrophy of the muscle takes place. Its nutrition is impaired, its size diminishes, and it becomes feebler.

STRAIN AND THE NERVOUS SYSTEM.

The changes which occur in consequence of strain to the ligaments, to the muscles, and to the bones are readily perceptible, but changes in the nervous system are not so easily appreciated. Nevertheless, they do occur, and these changes may be even more important than those in the coarser tissues. It was formerly supposed that the nerve cells of the central nervous system were connected together by definite fibrillæ, which were constantly present, but it is now generally believed that the connexion occurs rather by means of processes which are capable of elongation and contraction. At one time they connect the nerve cells together, while at another connexion may be broken, just as in a telephone office the various subscribers may have their wires connected at one time, while at another they may be switched off altogether. In the nervous system, just as in the muscles, regular exercise, without overstrain, tends to increase both nutrition and functional activity, but excessive exercise rather leads to functional weakness and atrophy. Moreover, just as a sudden severe strain may entirely snap a muscle, so a sudden severe strain may snap some of the nervous connexions in such a way that they never again join. The analogy between the effect of a sudden shock or strain upon the nervous system is indeed very much like what we see from the melting of a fuse by an overcharge of electricity. The fuse may be repaired and the connexion again made, but it is possible that this may not occur, and in such a case the connexion is destroyed for ever.

Many instances are on record where sudden shock has for ever destroyed the mental balance and left the sufferer hopelessly insane for the remainder of life. In other cases sudden shock may have a beneficial effect, and there is the well-known instance of the son of Crœsus, who, after being dumb from birth, recovered his speech when he saw someone about to murder his father. Cases are recorded also of the cure of epilepsy by the patient falling into water and being in danger of drowning.

EFFECTS OF EMOTION.

The effect of emotions on the body has been well studied by Darwin. Both in animals and in man there is the sudden tightening of muscles in the presence of danger, or in the effort to meet some unexpected event. This is, I think, particularly noticeable if one is riding a quiet horse and the animal is suddenly startled by an unexpected sight or sound. It gives a sudden jump, and not only the muscles of the rider's legs, but those of his arms and back, tighten at once in order to prevent his being thrown off. The depression caused by bad news shows itself in the general attitude: the limp muscles, the stooping posture, and the slow or even shuffling walk; while the contrary effects, erect attitude, agile walk, and active muscles, result from good news or anything that gives pleasure to the individual. The effect of emotion upon the vascular system was well noted by Harvey, who said:—

> For every affection of mind which is attended with pain or pleasure, hope or fear, is the cause of an agitation whose influence extends to the heart. ..... And what, indeed, is more deserving of attention than the fact that in almost every affection, appetite, hope, or fear, our body suffers, the countenance changes and the blood appears to course hither and thither. In anger the eyes are fiery and the pupils contracted; in modesty the cheeks are suffused with blushes; in fear, and under a sense of infamy and of shame, the face is pale, but the ears burn as if for the evil they heard or were to hear; in lust, how quickly is the member distended and erected.

In popular language we are accustomed to note the effect of the emotions on the circulation when we say: "His heart beat high with hope or sunk within him for fear." These emotions actually do alter the pulsations of the heart, hope and joy making them stronger, while fear makes them feebler. The effect of emotions upon the body is to a great extent produced through the pneumogastric nerves, which send branches to the lungs, heart, stomach, intestines, liver, and kidneys. Each of these organs is affected by the emotions. Thus, we say a man breathes more freely when some cause of anxiety is removed. The alteration in the heart is of more than one kind, for either the rate or the power of pulsation may be affected. Excitement of various kinds, and especially pleasurable anticipation, will very often quicken the pulse, but this quickening frequently occurs from simple excitement, such as that of entering the room of a consultant. Bad news will depress the function of the stomach, entirely destroy appetite, and even cause nausea, while compassion affects the movements of the intestine to such an extent that "soundings of the bowels" was used by the Hebrew prophets as a synonym for compassion. The increased activity of the kidneys by excitement is known to most men who have passed through an examination. If the emotional excitement be not too great and not too often repeated, and if all the organs affected by it are healthy, it will do no harm, and is likely, indeed, to be beneficial, just like intellectual work or muscular exercise. But here, also, too great or too prolonged excitement are apt to be followed by functional weakness, malnutrition, and atrophy. One of the most striking examples of malnutrition due to emotion is the neurasthenic condition which sometimes comes on in girls from some disappointment in love. They lose strength, they become

emaciated, their pulse is slow and feeble, the hands and feet become cold, and the skin, instead of being soft and velvety, becomes dry, hard, and scaly. These are the cases which are usually so successfully treated by the Weir-Mitchell treatment of isolation, forced feeding, and massage.

INFLUENCE OF THE NERVOUS SYSTEM OT GLANDULAR SECRETION.

For a long time the connecting links between the nervous system and such emaciation were very obscure, and even now they have not been completely made out, but the knowledge which we have acquired of late years regarding the influence of the nervous system upon the glands and their internal, as well as their external, secretion has greatly helped us. One of the best-known evidences of the influence of the nervous system upon a gland is that of the secretion of saliva caused by the taste, smell, or even thought of appetising food, and Pawlow has shown that the secretion is not confined to the salivary glands, but that the stomach and pancreas react to the pleasant stimulus in the same way. The effect of the thyroid gland upon the general metabolism in the body is one of the most marked instances of the power of the internal secretions. With atrophy of the thyroid we find that the growth becomes stunted, the circulation languid, the mental powers feeble, the face swollen and expressionless. With hypertrophy of the thyroid, on the contrary, we find associated with the quick pulse a rapid circulation, hot and sweating skin, and an excitable nervous system. This condition is frequently brought on by a shock. The most rapid case that I have ever seen was that of a man who was frightened by a thunderstorm in the early morning, and the symptoms were well marked within 13 hours. In this case the exophthalmos and swelling of the thyroid were both very great. I do not know how long it lasted, as the patient left the hospital. In another case the disease came on in a girl within four or five days of her brother accidentally shooting himself as he was crossing a hedge, and her death occurred in the course of about five months from a diarrhœa which nothing would stop. In another case, which I described 35 years ago, both exophthalmic goitre and diabetes appeared to come on after worry, and diabetes itself is, I believe, very often due to emotional strain. The strain which leads to diabetes is, however, I think not so much sudden emotion, like that which brings on goitre, as rather long-continued worry and anxiety.

How far the action of the central nervous system in producing glycosuria may be due to an effect upon the liver or upon the pancreas through the pneumogastric nerve has not yet been determined. Years ago the prevalent idea regarding diabetes was that it was chiefly due to alterations in the internal secretion of the liver and a more rapid destruction of glycogen, but now many cases are considered rather to be due to defective metabolism in the muscles, secondary to a deficient internal pancreatic secretion. The internal secretion of the pancreas is supposed to activate a glycolytic ferment in the muscles, and when this is deficient the sugar is not split up and consumed as it ought to be. I have already mentioned that Pawlow has shown that the external secretion of the pancreas is greatly affected by mental emotion, and it is probable that the internal secretion may be so also. But it is not only the salivary glands, stomach, and pancreas which are affected by the emotions. I have seen a case in which a young lady became quite jaundiced in a few days. She had presented no other symptom and the cause of it was apparently anxiety for her only sister, who was dangerously ill.

INTESTINAL CANAL AND NERVOUS AFFECTIONS.

The effect of emotion upon the intestinal movements is a matter of common knowledge. It is probable that alterations in the secretion and movements of the intestinal canal may affect its bacterial contents and their products. On one occasion I went to see the wife of a young doctor who was suffering from pneumonia, and I was struck with the extraordinarily fœtid breath of her husband, which seemed to be due entirely to his anxiety, as it was merely a temporary occurrence. How far the toxins formed in the intestine by bacterial growth, unchecked and perhaps modified in kind by the disturbance of the digestive secretions, may react upon the central nervous system, peripheral nerves and muscles, it is hard to say, but I am inclined to think that a great number of nervous diseases really have their origin, directly or indirectly, in the intestine. Some of the most common products of albuminous decomposition are toxic amines, or compounds of ammonia, and some of these have a very powerful paralysing action both on muscle and nerve. One of the most extraordinary actions that compounds of ammonia exert upon nerves is that of acting on the peripheral ends of the motor nerves in the same way as the charge of dynamite acts upon the electric wire by which it is discharged. The dynamite blows off the end of the wire and thus breaks any connexion. Many years ago I found in experimenting with salts of ammonia that when frogs were poisoned by them an electrical stimulus applied to the sciatic nerve would cause a contraction of the muscles in the frog's leg quite as powerful as normally, but that sometimes a second stimulus applied to it had no effect whatever, although the muscle still remained irritable to direct stimulation.[1] It appeared as if the ammoniacal salt had combined with the end plate in such a way that the first discharge of nervous energy blew it off so that the connexion between the nerve and the muscle was completely destroyed. I think it is possible that these observations may have a bearing upon the sudden stoppage of the heart in certain cases. I think it probable, also, that toxins formed in the intestine may have much to do with the production of sclerosis in the spinal cord. When experimenting a number of years ago on the action of some benzine compounds in the frog, Dr. Cash and I found that some of them produced symptoms of sclerosis, so that the foot of the frog instead of being drawn up with a sudden jerk was drawn up in a slow and shaking fashion. Many years afterwards I had a patient at St. Bartholomew's Hospital suffering from disseminated sclerosis. In spite of all the ordinary remedies he was becoming rapidly worse, so that not only his extremities, his speech, and mastication, but also deglutition became affected; he could hardly swallow and death seemed very near at hand. In despair I bethought me of our experiments upon the frogs. It had occurred to me that if he were suffering from any toxic poisoning from benzine compounds sulphates ought to help him as they would form an innocuous compound with the toxins. I accordingly put him on sulphuric acid and sulphate of magnesia. In three months he was well enough to go to a convalescent home.

LAPSE OF MEMORY.

How far the coöperation of toxins with mental shock or excitement may be responsible for curious lapses of memory I do not know. I have had three cases in which the identity of the individual has been completely lost for a time. The first was a stockbroker in Glasgow, who went out for a ride one morning, and being thrown from his horse fell upon a heap of stones. One of these stones caused a deep indentation just behind the left ear. He was taken up, carried home, and remained for nearly three months insensible. He then awoke to life, but it was not to the life he had before the accident. He forgot that he was a stockbroker, that he was married, and that he had several children. When he awoke to life seven years had utterly passed from his memory. He thought that he was a student at college. He could make Greek verses and remembered much of what he knew as a student and had subsequently forgotten. He had to be introduced to his wife and children and told that they were his. He still continued to have a sort of double existence. One morning when he was brought to see me he was seized with a sudden panic in alighting from the cab and fled away along the streets like a lunatic. That same afternoon he wrote an article on an abstruse financial subject which was printed next day in the *Times*, and was regarded with great admiration by all competent critics. Another case was that of a young man who suddenly disappeared from home, leaving no trace. For a fortnight nothing was heard of him, and then he wrote to his family to tell them that he had completely lost himself, until one day he awoke lying in bed in a house in Brittany and tended by a very kind French woman. It turned out that he had been pitched from his bicycle close to the house and that she had taken him in and tended him. The fall from his bicycle seemed to have restored his identity, but he never knew exactly when he lost it or how

[1] Lauder Brunton: Text-book of Pharmacology, Therapeutics, and Materia Medica, first edition (London: Macmillan and Co., 1885), p. 567.

he had got to Brittany at all. I was not able in this case to trace a distinct relationship between mental strain and loss of identity. In the third case, however, such a connexion was easily traced. A young man had been working very hard for the Indian Civil Service and had just passed his examination. Instead of returning home, however, he disappeared and nothing was heard of him for two or three weeks when a letter came from Malta asking for money to pay his passage home. It appeared that he had completely lost his identity until one day in Mogador he suddenly awoke to find himself knocking another man down. He never knew exactly how he reached Mogador, but he learned that he had taken his passage from there to Malta and in coming out of the steamship office a man had tried to wrench his purse from his hand. The exertion of knocking the man down seemed to have restored him to himself. He then knew who he was and communicated as soon as he could to his friends. The time which elapsed between his leaving London and arriving at Mogador remained a complete blank. The immediate cause of this curious loss of identity appeared to be the strain of examination, but the fact that this result is so rare, while examinations are so very common, appears to show that some other factor was at work. It is possible, of course, that this factor may have been simply the mental constitution of the patient, but it may also have been that this was aided by some toxin generated in the intestine in consequence of nervous disturbance of its innervation.

EYESTRAIN AND HEADACHE.

One of the most curious effects of nervous strain upon the nervous system is that of ocular strain in giving rise to headaches. Many cases of migraine resist medicines until the inequality in the eyes is equalised, while, on the other hand, glasses which will equalise the sight in both eyes will sometimes cure headache without any medicine whatever. But here again the production of headaches appears to be due to more than one factor. After a severe headache, accompanied by vomiting, and the enforced abstinence from food which the nausea entails, the patient is often able to strain the eyes by going to a picture gallery or theatre, reading small type, reading in bed, &c., without bringing on a headache, although any of those proceedings would certainly have brought it on a few days previous to the attack. It appears to me that the headache is due to the combined action of strain acting upon nerve centres poisoned by toxins, just in the same way as the failure of the frog's muscle to respond to a second stimulation of the nerve in a case of poisoning by ammonium salts. Very frequently, indeed, sick headaches are preceded by irritability, and the irritability may be often removed and the headache prevented if a dose of salicylate of soda, phenacetin, or antipyrin be taken when the irritability comes on, because it often precedes the headache by some hours. The removal of toxins from the liver by means of a mercurial, followed by a saline purgative, will also tend to prevent headache, even although the eyestrain be continued.

IRRITABILITY AND HEART DISEASE.

There is a curious connexion between irritability and heart disease. The old steward at St. Bartholomew's, Mark Morris, told me that whenever a patient came to the office at 11 o'clock at night and wished to be discharged immediately, they knew it was a case of heart disease, and the high tension of patients with gouty kidney is often accompanied not only by sleeplessness but by great irritability of temper. The condition of the circulation thus affects the emotions, and the emotions, again, have a most powerful action upon the circulation. I have seen a case in which a loud systolic bruit, both at the apex and base, appeared in a healthy heart within a few weeks after a great sorrow, and in another patient the worry connected with the disturbances in South Africa was followed by irregularity and weakness of the heart, to which the patient ultimately succumbed.

The effect of emotion upon the blood pressure is sometimes very great. In one experiment, which I made upon myself, I found that the irritation of being unable to keep an appointment raised my pressure from 120 to 160 millimetres—that is to say, by one-third of the normal amount; and it is this sudden rise which renders emotion so dangerous in cases of angina pectoris. It is well known how poor John Hunter rose up from a meeting of committee in a fit of anger and died just outside the door of the room. In all cases suffering from angina I advise the patients to abstain from excitement of every sort, and more especially to avoid anger and to give up attendance at committees, as on a large committee there is a great chance of some member being obstructive or irritating, and this, coupled with the increased irritability of which I have spoken, in a case of heart disease and in gout, may give rise to most serious or even fatal consequences.

INTELLECTUAL STRAIN.

Intellectual strain is much less injurious to the heart than emotional strain, but if the intellectual strain is great it is apt to be accompanied by more or less emotional disturbance, and also to lead to imperfect nutrition of the body, including the circulatory system. For it is to be remembered that the vagus nerve goes not only to the heart but to the stomach, and that intellectual strain may interfere with the digestion, either directly by its effect upon the digestive canal or indirectly by increasing the hours of work and diminishing the amount of time that ought to be devoted to rest or exercise.

MUSCULAR EXERTION, DIGESTION, AND THE BLOOD PRESSURE.

Muscular exertion tends to raise the blood pressure very greatly by compression of the arterioles during muscular contraction. When the exertion is not only severe but sudden the tension may rise very greatly indeed, but if the muscular exertion is begun slowly the blood-vessels in the muscular substance dilate, and thus the exercises may be continued without materially raising the tension; in fact, at the end of the exercise it may be actually reduced. It is for this reason that patients suffering from angina so often tell you that the pain comes on as soon as they begin to walk, but after they have been walking a little while it ceases and then they may continue to take exercise, even severe exercise, for an hour or more without feeling any return of the pain.

There is another condition that tends to raise the blood pressure, and that is the ingestion of food. In his admirable book on the circulation Marey worked out the relationship between pulse-rate and resistance in the vessels and reduced it apparently to a simple mechanical problem—the greater the resistance in the vessels the slower became the pulse and *vice versâ*. Presumably there was no need for any nervous system either to the heart or to the vessels, the whole thing appeared to be mechanical, but there was one exception which he passed over and said very little about, and that was the rise both in pulse-rate and in arterial tension which he observed after meals, a rise which was quite independent of exertion. Now a rise in the pulse-rate is quite what one would have expected, according to Marey's law, because during digestion the vessels of the splanchnic area dilate in order to convey a free supply of blood to the secreting glands. The pressure, therefore, ought to fall very greatly, but it does not. On the contrary, it rises, and probably this rise is due to the effect of various products of digestion which are absorbed. What these are we cannot say, but we know that one of the products of pancreatic digestion is tyrosine, and from it may be produced an organic base which has the power of raising the blood pressure in the same way as the suprarenal extract, but more slowly and more persistently. This base has recently been introduced into medicine under the name tyramine. It is quite possible that other diamines are also formed in the intestine, and here I would like to draw attention again to the experiment I have already mentioned, that sometimes in poisoning by ammoniacal salts a muscle would respond by full contraction to the first stimulation of its nerve, but utterly fail to do so on the second stimulation. This whole subject requires a great deal of investigation, but it has seemed to me just possible that the sudden deaths which occasionally occur in elderly men who begin to exert themselves shortly after lunch may be due to the rise of pressure commonly associated with digestion and to the rise produced by exercise, combined, possibly, with the presence in the blood of some toxamine. Whether this be so or no, it is certain that in all patients presenting symptoms of angina the rule should be made, not only that they are to begin exercise very slowly, but that they should always rest for some time after a meal, and take especial care when beginning exercise of any sort to go on for some time very gently before venturing on

anything which may cause the least strain. It is very important also to prevent any accumulation of toxamines by keeping the liver as well as the intestines freely acting.

EFFECTS OF OVER-EXERTION ON THE HEART.

The effect of continuous exercise in a case of high tension is to lower it by dilating the vessels supplying the muscular system, but a similar dilatation occurs in healthy people and is good, provided it occurs only in moderation. But if the blood is pouring rapidly through the muscles from the arterial system into the veins and the return of the venous blood to the heart is accelerated by muscular action, the right side of the heart is apt to become overloaded. Probably there is no one here who has not felt the distress due to over-exertion at some time or other in his life, and who is unacquainted with the relief he experienced when he got what is known as his second wind. I am not certain that I am right in my pathology, but my own belief is that second wind is neither more nor less than the accommodation of the pulmonary vessels to those of the general circulation. I well remember a good many years ago crossing the Col de Theodule in a frosty autumn morning. The guides walked somewhat quickly and I began to get shorter and shorter of breath. I felt a great oppression over the chest, and as I was walking without my coat and with my shirt thrown back, I put my hand where the apex beat of my heart ought to have been. To my astonishment it was not there, and I found that it had travelled round to the epigastrium, showing that the right side of my heart had become much dilated. I shouted to the guides to go more slowly, and in a short time the apex beat had travelled away from the epigastrium and back to its normal position. The over-exertion had led to the right ventricle becoming distended, and slackening the pace removed the distension by allowing the blood to escape through the lungs into the general circulation, and thus restored me to comfort. A good many years afterwards I read a paper by my poor old friend von Basch on "Lungenstarrheit" (pulmonary rigidity). He observed that much pressure in the right ventricle caused the capillaries surrounding the air vesicles to become stiff, so that the vesicles themselves could not readily contract during expiration. The consequence of this condition is that in this circulatory emphysema, as I may term it, the expiration becomes greatly prolonged, just as in ordinary emphysema, so that if we were to represent ordinary breathing as "ahhh ha" we might represent this prolonged expiration as "ahh haah." After I had read this paper I had occasion to run after a friend through a wood in Canada a good deal faster than I liked, as he was in much better training than I, and I found that my respiration very speedily acquired the characters described by von Basch, the expiration being prolonged and gasping. By slowing down this condition of respiration also disappears, just like stitch in the side, which often comes on also before a man has got his second wind. The stitch in the side, I think, may be possibly due, in some cases at least, to a pull of the lung upon some old pulmonary adhesion, but this is merely a supposition. As a rule, after over-exertion of this kind, both the pulmonary capillaries and the right ventricle quickly return to their normal condition, and may be little, or none, the worse for it. Indeed, if the exertion be not carried too far and is repeated at proper intervals, both heart and vessels will be the better for it, just as the proper use of the biceps will produce in the muscle greater contractile power. We see, indeed, in athletes a physiological hypertrophy of the heart which appears to be productive of no bad consequences, and which, after some years of quiet life, may disappear and probably generally does do so. But if the strain be too great and too often repeated a more or less permanent condition of dilatation is produced which leads to shortness of breath and symptoms of discomfort in the cardiac region even in young people, and which in elderly men may have the most serious consequences. One of my patients, a man of 86, was extraordinarily strong and healthy. It seemed as if he ought to live to 100. One day he was out in the country, and seeing some harriers running over a ploughed field he must needs run after them. The exertion was too great; he managed to get home, but his heart failed and he died after a few days.

SCHOOLBOYS AND CARDIAC STRAIN.

There is an old proverb that "What is one man's meat is another man's poison." What is true of food is true also of exercise. What is barely enough for one may be a great deal too much for another. Some time ago several doctors, of whom I was one, drew attention to the mischief that might result from cardiac strain through over-exertion in schoolboys. Our action was rather severely criticised, and a good many doctors said they had not seen cases of the sort that we deprecated. But in a court of law negative evidence is not always of much value, and although there may be no other evidence than that of A to show that B hit C with a stick, B might bring a thousand witnesses to show that they had not seen him do it. I have seen cases of cardiac strain from over-exertion in boys, and it is for this reason that I think more care should be taken than has previously been the case in regard to the examination of the boys' hearts before allowing them to undertake long-distance racing. I have a very great belief in the utility of exercise. I have no wish to diminish exercise in the training of schoolboys. What I should like to do is to guard against over-exercise and strain. In football there is much greater exertion for a short time, and with some boys the strain might be too much for them, but I do not think this is likely to be anything like so great as the long-continued strain of a very long race. In our public schools great attention is paid to games, and the training the boys thus get—bodily, mentally, and morally—is, I think, of the greatest value, but I am inclined to think that it would be a good thing if this were supplemented by exercises which would develop them equally all round. In the University of Pennsylvania the students on entering have to pass a physical examination, and the professor of physical training notes their weak points and arranges exercise for them so as to produce an equal development throughout the body. The strong points he leaves to take care of themselves. I had once a long conversation with Professor Hueppe of Prague, who is not only a scientific man of great eminence, but a great athlete, and his opinion was that in Germany they had too many exercises and too few games; that in England we had too many games and too few exercises; that the ideal of development was to be gained by a mixture of the two.

REJECTION OF RECRUITS: NEED OF PHYSICAL TRAINING.

But there is another section of the community in which physical training is badly wanted. Around the football match we may see several thousands of men who have collected to watch the play, but who are themselves sadly deficient in physical development. At the time of the Boer War two out of every five who presented themselves as recruits were either rejected at once or within less than two years for physical deficiency, and it was stated in the *Evening Standard* of Jan. 24th this year that something like one-third of the men in London who present themselves for enlistment in the Territorial Force have to be rejected owing to some physical defect. The most important defect apparently is that in vision, and this I think is due in great measure to early over-straining of the eyes. The proportion of Germans who suffer from shortsightedness is very great, and this I know has been attributed to the strain on the eyes caused by the German characters, both printed and written, and in scientific works the Roman characters are now generally employed. One of the most striking examples of strain on the ciliary muscle that I have ever seen was a patient who came from South Africa to consult me because he supposed he had a tumour in his brain. He was a man in active business, and was able, he said, to read his account books for four or five minutes, and then everything seemed to spin round and he could not see the figures any more. I examined him very carefully and found that he had nothing the matter with him except a little presbyopia. His condition simply was that by a great strain of the ciliary muscle he could adjust his focus so as to see the figures in his ledger for four or five minutes, then the muscle became tired, accommodation relaxed, and he could see nothing more. I sent him to an oculist who provided him with proper spectacles, and he went back to South Africa cured. To avoid such deficiencies in vision it is, therefore, advisable that the eyes should not be strained in school by making the child read small type or with a bad light.

Deficiency in sight is not the only cause of rejection. Imperfect development of the muscles, of the lungs, and of the heart are also responsible. The Board of Education has recognised the necessity for physical training in the

schools, and has issued an admirable syllabus of the subject; but now arises a great difficulty. The subject is new, the teachers of the three R's have not been trained in it, and who is to teach the teachers? We want, for the sake of the country, a central institute for physical training, which might be on the same lines as the London University, with colleges all over the country, where the teachers could be themselves taught, while the central institute might examine as to their fitness and grant a certificate, but it is exceedingly difficult to get people to see the necessity of this. They all complain of the expense and wish to lessen the education rate below what it is at present. I for one should be quite pleased to do this, but it ought to be by cutting off a lot of extraneous subjects, teaching the three R's thoroughly, and building up the physique of the children. But any scheme of physical training would have been liable, as I have said before, to do harm instead of good, unless it were preceded by compulsory medical examination of school children. This, fortunately, we have now got, so that, as medical men, with the good of the country before us, we must now do the best we can to ensure proper physical training. By obtaining this we shall diminish the number of cripples and of unemployed; by strengthening the physique we shall, I think, strengthen the *morale;* and, as I said in an address I gave some two or three years ago, it is cheaper to spend pence upon children than pounds upon paupers.

An Address
ON
PEPTIC ULCER AND DILATATION OF THE STOMACH.

Delivered before the St. Helens (Lancs) Medical Society

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GENTLEMEN,—It is no part of my business now to discuss the causation of ulcer of the stomach or of the duodenum. It is sufficient to note that simple ulceration of the type met with in these organs does not occur in any other part of the alimentary tract except under very special circumstances; that, in fact, it is strictly limited to those parts that are bathed with the acid gastric juice. I am at present chiefly concerned with the problem of the diagnosis of peptic ulcer when it already exists, with its treatment, and with the recognition and treatment of certain well-known morbid conditions which may follow in its train.

DIAGNOSIS.

As regards the differential diagnosis between gastric and duodenal ulcer, I doubt whether it can be made with any confidence, unless the associated conditions point strongly to a lesion at the cardiac end of the stomach, when the question of duodenal ulcer is not likely to arise. Duodenal ulcer is more frequently found post mortem in men than in women, but the Royal Infirmary reports for the last 13 years show that even in men gastric ulcer is twice as frequently met with as duodenal ulcer, so that the male sex only slightly increases the probability of the ulcer being duodenal. The statistics of operation are not far different.

Nor is the location of the ulcer on one or other side of the pylorus of much importance in practice, as the treatment is essentially the same in both cases. The anxious problem—the problem which concerns not merely the immediate treatment of the case but the future prospects of the patient, and it may be the reputation of the medical attendant—is the determination whether ulceration is present or not.

Apart from acute symptoms indicating perforation and calling for immediate operation, the signs and symptoms pointing to ulceration of the stomach are notoriously equivocal and uncertain. They practically resolve themselves into three—viz., pain with or without tenderness, vomiting after food, and hæmatemesis or melæna. Where this triad of symptoms is present a provisional diagnosis of peptic ulcer is justified, and the absence of one or other of the three by no means excludes it. In the nervous type of patient, however, pain, unless very severe, is obviously an untrustworthy guide, and no one can fully gauge the extent of another's suffering. Vomiting also is not uncommon without ulcer, especially in chlorotic girls of nervous temperament. The vomiting of blood or the passage of melæna seems to offer more solid ground for a diagnosis. Still even here certainty is not easy to attain. Blood may be vomited, or appear to be vomited, when the source of bleeding is not in the stomach. Young women sometimes have a practice of sucking their gums at night, and, especially if carious stumps are present, blood flows, is swallowed, and is subsequently vomited. I always suspect this source of the bleeding if I am told that it has occurred in the morning before breakfast. Blood from the naso-pharynx also may be swallowed and then vomited, and some time ago I saw in consultation a gentleman who had a small ruptured vein in the soft palate, the intermittent bleeding from which had given rise to a serious alarm that he was in the early stage of cirrhosis of the liver.

But apart from such cases we are faced with the question whether bleeding directly from the stomach wall, without any other indications of a hæmorrhagic tendency, may not occur without the breach of continuity and loss of substance which constitute ulcer. Such a possibility was recognised by the older physicians, who taught that hæmorrhage might be vicarious to the catamenia, and Dr. Hale White has of late years directed special attention to bleeding occurring apart from ulceration under the name of gastrostaxis. In the year 1901 a young woman, aged 23 years, was admitted to the Liverpool Royal Infirmary with pain in the chest and vomiting, followed two days later by hæmatemesis. Laparotomy was performed, the stomach and the duodenum were opened, but no ulcer was found. A week later hæmatemesis recurred and she died. At the post-mortem examination two erosions of the size of a pin's-head were found in the mucous membrane near the lesser curvature of the stomach, and microscopically there were numerous engorged capillaries, not arteries, opening into them. May it not be that many cases of seeming bleeding ulcer which get well are merely cases of such capillary oozing?

STATISTICS AND CONCLUSIONS DERIVED FROM THEM.

We will now inquire what light, if any, the examination of statistics may throw upon the problem. During the 13 years ending 1908 the total admissions into medical wards of cases in which a diagnosis of gastric ulcer was made were 389—33 men and 356 women—and the mortality was 4·3 per cent. It thus appears that, whether correctly or not, the diagnosis is made ten times more often in women than in men, and that as seen in the medical wards of a hospital the mortality in such cases is low. When we come to the surgical statistics we find a somewhat different state of affairs. The cases here will manifestly be the graver cases, and those in which the diagnosis is more likely to be certain. I only take the figures from the beginning of 1901, since before that date gastric surgery hardly existed. Here I find that out of 77 cases diagnosed as simple gastric ulcer 72·5 per cent. were women, and out of 56 cases of perforated gastric ulcer the proportion of women (71·5 per cent.) is practically the same. If, however, we take performance of plastic operations, gastroenterostomy and pyloroplasty, as indications of former ulceration we find its incidence about equal in both sexes—viz., 89 men and 84 women. As regards post-mortem statistics there is a slight excess of gastric ulcer in women over men, but if we include ulcer of the duodenum, which, as I have said, cannot as a rule be differentiated clinically from gastric ulcer they are practically equal—24 men and 26 women. Duodenal ulcer was so rarely diagnosed and so seldom perforated (2 males and 1 female) that it was not worth while including it in the clinical statistics.

I think we may draw the following conclusions from these figures. 1. Acute ulcer of a kind liable to lead to perforation is nearly three times as common in women as in men. 2. Chronic ulceration, which is likely to give rise to cicatricial deformity and to call for plastic surgical operations, is equally common in both sexes. 3. Fatal ulceration is equally common in both sexes. In the face of these figures how are we to interpret the fact that in the medical wards 356 women were diagnosed as suffering from gastric ulcer and only 33 men? Two explanations are possible: (1) it may be that the majority of these women were not suffering from gastric ulcer at all; or (2) it may be that

gastric ulcer is really more common in women, but that in them there is a greater tendency for it to get well quickly and without cicatricial deformity. My own view is that both these factors are present. The occurrence of gastrostaxis, oozing of blood without ulceration, has been proved to be possible. The tendency of the ulcer in women to perforate is not incompatible with a tendency to heal rapidly if this accident is averted. On the contrary, our general experience of pathology is that the more acute a disease is at the commencement the more likely it is to get well if the patient survives the first onslaught. I suggest that of the many women admitted to the hospital with hæmatemesis and other indications of gastric ulcer, a large proportion, though I cannot say how large, have no ulcer at all, and that a large proportion have an ulcer which places them for a time in imminent danger, but which gets well under rest and careful medical treatment.

GASTRIC ULCER AND APPENDICITIS.

Mr. Moynihan, in a recent address which has excited no small amount of discussion, suggests that in Dr. Hale White's instances in which a diagnosis of ulceration of the stomach had been made, in which also hæmatemesis had occurred, but in which no perceptible lesion was present, the patients were in reality suffering from appendicitis. That symptoms pointing strongly to gastric ulcer may be due to an appendicitis otherwise latent I readily admit, and I published such a case briefly in the *British Medical Journal* three weeks after the appearance of Mr. Moynihan's paper, but to assume, as he does, that all similar cases in which there is no ulcer are cases of appendicitis is a hasty generalisation for which there is no adequate foundation in fact.

SITUATION OF ULCER IN RELATION TO COMPLICATIONS AND SEQUELÆ.

The most frequent situation for peptic ulcer is at or near the pylorus and on the posterior wall. Much less frequently it occurs on the anterior surface of the stomach and at the cardiac end. The location has an important influence on the complications and sequelæ of the ulcer. Thus if a pyloric ulcer heals with cicatrisation it is likely to lead to stenosis and gastrectasis, a condition I shall deal with at length presently. An ulcer on the moveable anterior surface is likely to perforate into the peritoneum, while an ulcer at the back is more likely to contract protective adhesions to the adjacent structures. In the rare instances in which the ulcer is at the cardiac end complications connected with the left pleura are liable to occur. Over a year ago I saw, in consultation with Dr. Banks of Liscard, a young lady who had a fœtid left empyema apparently produced by extension of inflammation through the diaphragm from a gastric ulcer. The signs and symptoms were sufficient to convince us of the correctness of the diagnosis, but as drainage was followed by complete recovery it was not verified. Quite recently, however, I had a woman admitted to hospital with signs of left pleurisy in whom acute abdominal symptoms led to operation a few days later, and an ulcer was found at the cardiac end of the stomach which had led to the formation of a subdiaphragmatic abscess in the neighbourhood. The possibility of a gastric origin ought always to be kept in mind in dealing with a left-sided pleurisy or empyema.

If the possibility of true hæmatemesis without ulceration, gastrostaxis, be admitted, as indeed it must be, the diagnosis of acute gastric ulcer can rarely be made at once with certainty apart from the occurrence of perforation. Our duty, however, will be to look upon all instances of gastric pain and hæmatemesis as cases of the graver condition and to treat them accordingly.

TREATMENT.

As regards the treatment of gastric ulcer, my practice for many years has been to withhold all food by the mouth for three days after the last appearance of blood in the vomit or the stools, and to administer nutrient enemata four times a day. On the fourth day I would begin to administer small amounts of milk diluted with soda-water or lime-water, perhaps only a teaspoonful every three hours at first, and gradually would increase the amount every day. Under this treatment relapses rarely took place and progress, though slow, was sure. Latterly, since Lenhartz published his views, I have tried giving more food from the very first, a pint of milk with a beaten-up egg in the first 24 hours and the amount steadily increased, and I have certainly seen no harm result. The theoretical basis of this treatment is that the administration of nutrient enemata, while little more than slow starvation, excites a flow of acid gastric juice in the stomach which irritates the ulcer, while, on the other hand, the proteids in the egg-and-milk not only maintain the nutrition of the patient but combine with the acid of the gastric juice and render it inoffensive. I have not had sufficient experience as yet of this method to feel justified in urging its use. In one case of abundant hæmatemesis in an anæmic young woman it was followed by a rapid and complete restoration to robust health, and so far I have seen no harm from its employment. Whatever other means we adopt, absolute rest, physical and mental, must be insisted on.

The administration of antilytic horse serum has lately been extolled in this disease. I am at present giving it to a young woman with symptoms of gastric ulcer, and the effect has certainly been highly satisfactory. It seemed to relieve the pain in a marked degree, so that when I stopped it after a few days she asked me to put her on it again. On theoretic considerations it seems worthy a trial, and in cases which do not yield quickly to rest and careful dieting it ought to be given. I have long used uncooked mutton, extracted with salt-and-water, with apparent advantage.

AFTER-RESULTS.

I know of no statistics to show in what proportion of cases which have recovered from symptoms suggestive of peptic ulcer stenosis, dilatation or other results of cicatricial changes are likely to occur. Considering the frequency of symptoms suggesting ulcer in women, one is inclined to think that the great majority at least in them leave no permanent trouble. On the other hand, in cases where permanent pyloric stenosis or other organic deformities are present it is the rule to find a history of long antecedent gastric trouble, including the vomiting of blood. Further, it is not possible in practice absolutely to separate cases of ulceration from those affected by cicatricial contraction. As likely as not when a stomach is dilated from a cicatricial contracted pylorus a chronic open ulcer will be found at the margin of the orifice; and where the symptoms point to active ulceration extensive cicatricial contraction will also not infrequently be found to exist.

DILATATION OF THE STOMACH.

Dilatation of the stomach in a greater or less degree may be met with in a variety of conditions, and it is no easy matter to determine where physiological distension ends and pathological dilatation begins. The size of the normal stomach must vary almost from hour to hour, and its form and position alter greatly according to the position of the body, whether erect or reclining. Where great dilatation is present, such as results from marked stenosis of the pylorus, the signs and symptoms are very obvious. The patient will tell you that for weeks or months past he has been subject to attacks of vomiting at various intervals, that the vomit is usually brought up in enormous amounts, so as to fill a chamber or a wash-basin either at once or in the course of two or three hours. The vomit will probably be described as frothy or barmy, or it may be simply watery or stained brownish from altered blood. If you are shown a specimen of the vomit you will find it strongly acid, and with the microscope you will probably find sarcinæ present in the sediment. Physical examination of the stomach will yield appearances which differ according to the period of the examination. When the stomach is full and relief from vomiting has not taken place the outlines of the distended organ will be distinctly visible. In marked cases the greater curvature is seen sweeping across the abdomen two or three inches or more below the umbilicus; the lesser curvature may also be seen if there is visceral ptosis; between the two there is a convex protuberance which may be seen to alter its form as the result of peristaltic movements of the stomach wall. On palpation with both hands coarse succussion splash may be easily elicited, and also by gently shaking the patient from side to side. Percussion will yield extensive tympanitic resonance over the stomach area and dulness in the left flank. After relief has been obtained by vomiting, the signs of dilatation may be but slight or may be impossible to detect. Some splashing sounds may usually be elicited on sharply depressing the anterior abdominal wall, but the same may occur in subjects apparently healthy.

INTERMITTENT PYLORIC OBSTRUCTION.

A very remarkable condition is that of intermittent pyloric obstruction, a condition particularly described by Sir Clifford Allbutt, and of which I will narrate two instances in my own practice. One was that of a young man who was admitted to the Royal Infirmary with a history of vomiting such as I have described. The physical examination the stomach appeared normal. A few days later (he having remained quite well in the meantime) I found the stomach enormously distended. I came to the conclusion that there was some pathological condition about the pylorus, probably adhesions, which caused the stomach to become acutely bent or kinked so as to produce complete occlusion, and I asked my colleague Mr. W. Thelwall Thomas to perform an exploratory laparotomy. This he did, when he found adhesions around the pyloric end of the stomach, and was able to show me how a slight dropping of the organ could cause complete occlusion of its lumen. Gastro-enterostomy was performed, rapid recovery took place, and I have heard no more of the patient. In another case to which I shall have occasion to refer more fully later the patient has been for years liable to temporary complete pyloric occlusion with enormous distension of the stomach relieved by vomiting. On one occasion a remarkable form of relief took place. During one of these attacks she passed a grumous, frothy, liquid stool measuring about a pint and a half, much resembling in appearance the liquid vomited a day or two before. After the evacuation she felt better, the abdomen was flatter, and the stomach, which I had found much distended in the morning, appeared to me to be much smaller. I believe that in this case the pyloric stenosis was in part due to torsion or kinking of the part, and that by some fortunate accident it had become untwisted. Sir Clifford Allbutt quotes a case on the authority of the late Sir William Broadbent in which such an event frequently occurred. The patient after retiring to rest would have a sense of the gushing of fluid within her, and on seeking the closet a profuse liquid discharge would issue from the rectum. After such a discharge the stomach was no longer perceptible by the physical signs which had previously been only too manifest. Ultimately a necropsy was obtained and non-malignant stricture of the pylorus was found. In the upright position the pylorus was probably closed by acute flexion of the part at the point of suspension.

DIFFICULTIES IN DIAGNOSIS.

In cases where the distension of the stomach is great it might seem that the diagnosis would present no difficulty, but where the obstruction is intermittent, as in the two cases which I have named, this is far from being the case if the practitioner does not happen to be consulted during the attack of complete obstruction. In such cases also the visible peristaltic movements, which are rightly regarded as an important sign of pyloric stenosis, will probably at no time be present, since the obstruction is of too brief duration to induce much hypertrophy of the muscular coats of the stomach. The sudden unaccountable attacks of gastric pain and vomiting may, I believe, be mistaken for the gastric crises of locomotor ataxy, and lead to the diagnosis of that disease, a serious, perhaps fatal, error in view of the possibilities of surgery. Two years ago a gentleman, aged 40 years, married three years, was brought to me by his medical attendant. He had lately seen a physician in London, a recognised authority on the nervous system, who suspected that he had locomotor ataxy. He assured me that he had never exposed himself to the possibility of acquiring syphilis. There was no family history of nervous disease. He used to enjoy good health, but for the past year he had suffered from periodical attacks of gastric pain and vomiting and had lost a good deal of weight. He told me he had vomited as much as two pints at a time. Finding that his pulse was 100 or more I thought of the possibility of locomotor ataxy, but abandoned the idea on finding the knee-jerks brisk and equal. The pupils were not quite equal, but they reacted normally to light and to accommodation; there was no unsteadiness on standing with the eyes closed, and there was no ataxy of the arms. There had been pains in the legs, but they were not like lightning pains, but seemed to be of a rheumatic nature, since they made the patient limp in his walk. There had been temporary weakness of the external rectus of one eye. I found marked splashing in the stomach, which seemed to be dilated, and the urine contained indican. In the absence of syphilis, of the Argyll Robertson pupil, and of ataxy, and with the knee-jerks brisk, I felt justified in assuring the patient and his wife that whatever else might be the matter he was not the victim of locomotor ataxy. I inclined to the view that he had pyloric obstruction with occasional complete occlusion from twisting or kinking of the viscus. This gentleman had consulted at least three other physicians, one of whom, a general physician with leaning to neurology like myself, held with me that he had not got locomotor ataxy. It is only right, however, that I should state that since he saw me he consulted another London neurologist who believed that he had locomotor ataxy. However, a year after I saw him he died, worn out by the gastric attacks, and I am told that the knee-jerks were retained to the last. He had refused operation. With such an after-history I leave you, gentlemen, to draw your own conclusions between the diagnosis of a chronic spinal degeneration and of organic disease of the stomach. Whenever we meet with clear indications of dilatation from pyloric obstruction we may advise gastro-enterostomy with the greatest confidence of success.

DIFFERENTIAL DIAGNOSIS OF ORGANIC AND FUNCTIONAL DISEASE.

In the great majority of cases of organic disease of the stomach, accompanied or preceded by ulceration, the signs and symptoms are much less distinctive than those I have described and the differential diagnosis from functional disorders becomes more difficult. Apart from the mere persistence of chronic ulcer, which may be attended with pain and vomiting and occasional hæmatemesis, we meet with various forms of cicatricial contraction. Pyloric stenosis leading to great dilatation I have already considered; in other cases the dilatation may be comparatively slight. Again, the cicatrix may be in some other portion of the stomach and may constrict it in such a way as to produce an hour-glass stomach or other deformity. Finally, the existence of external adhesions, the result of former inflammation spreading to the serous coat, may fix the stomach to neighbouring parts, prevent its normal expansion, and limit its movements in various ways. In cases such as these the symptoms will be mainly those of chronic indigestion—pain after food, acid eructations, flatulence, and occasional vomiting. There will probably be a good deal of wasting, whether resulting from the disease or from the treatment, for when patients are sent to me with such symptoms they have generally been subjected to a rigidly restricted diet for a considerable time. On physical examination it may be that some hardness may be felt in the epigastrium, or visible peristaltic movements may be seen; more often the only objective sign is the presence of audible and palpable splashing in the same region. If there is pain and a history of recent vomiting the probability of organic obstruction is considerable; in the absence of these for hours or days the existence of functional dyspepsia and atony of the stomach is more probable. Much will depend on the habit and mode of life of the patient. You will sometimes find that an anxious, over-wrought patient, with a flabby stomach, will be quite able to digest a solid meal when he is taken away from his work and made to sit still for half an hour before his dinner. I could give you illustrative cases did time allow.

In deciding to submit these chronic cases to operation the mere size of the stomach is of less importance than the time in which the organ passes its contents onwards into the duodenum. Gastric stasis may be asserted to be present if some six hours after a meal some of the food still remains in the stomach. A good plan is to order a light meal with a tablespoonful of currants to be taken at bedtime and then wash out the stomach the first thing in the morning. If none of the currants are recovered the motor power of the stomach is not seriously impaired. Of late years we have come to rely more and more on radioscopy in determining the size and motility of the stomach. By this means we can watch the progress of a bismuth meal through the alimentary tract. When we find distinct delay in transmission, accompanied with local and constitutional symptoms, we may generally advise gastro-enterostomy.

A REMARKABLE CASE.

I now propose to bring this long discourse to an end by relating the case of a lady, a friend and patient of my own, which presents some features which, as far as I know, are quite unique.

A widow lady, 64 years of age, first consulted me in

October, 1900. A good many years before she had been attended by a well-known physician, since retired, for hæmatemesis, and subsequently for mitral regurgitation. When I saw her she had gastric pain, there was vomiting, and the stomach was distended. At times the distension was great and was relieved by copious vomitings of watery fluid containing a little blood, sarcinæ, and a good deal of free hydrochloric acid. The patient was clearly suffering from temporary complete occlusion of the pylorus. A surgeon who saw her with me was unwilling to operate on account of the patient's age and the presence of valvular disease. The patient also declined operation and after one trial of lavage resolutely refused to allow me to repeat the process. For some days she was fed entirely by the rectum; even then the stomach continued to fill up with its own secretions. On one occasion the spontaneous evacuation through the pylorus and the bowels, which I have already described, took place. After some days the power of retaining a little food returned, but any slight increase in the amount was liable to be followed by complete occlusion. To make a long story short, my patient found that she had to submit to live entirely on fluids and not too much of them. A small piece of solid food no bigger than a grain of corn seemed capable of plugging the pylorus; any distension of the stomach caused it to drop and the pyloric end to become kinked. For 8 years she lived—I am not exaggerating—on a pint of fluid and two or three crumbly biscuits per diem, and in spite of this care had an attack of complete occlusion every 8 or 12 months, each one of which I thought would prove to be the last. She wore an abdominal belt, which certainly seemed of some service in supporting the stomach. It was surprising how she retained her mental and bodily vigour under this regimen. Two years ago, however, she was evidently failing from want of proper nutriment, and while spending the summer at the seaside she began to suffer from a peculiar hallucination. She told her family, obviously in good faith, that I had said she might eat anything she liked, and insisted on consuming meat and vegetables in considerable quantity. The result was, as might have been expected, that an attack of hæmorrhage took place. However, she persisted with the new and enlarged dietary, and instead of getting worse she improved, and after being confined for eight years to a daily allowance of a pint of liquid she found that she was now able to take ordinary food in normal amounts. She began to put on flesh, and for the last two years she has enjoyed good health, takes her meals as do others, and has had no return of vomiting or other serious symptoms of gastric trouble. Apparently the disturbance from the taking of solid food two years ago led to the ulceration or stretching of the adhesions that restrained the pylorus. If this was madness there was method in it. One often feels that nature is a good physician but a bad surgeon, but here a beneficent process of ulceration or of extension had brought about a complete and lasting relief which could scarcely be improved on by the knife of the most skilful surgeon.

A CASE OF MIGRAINE ASSOCIATED WITH CHLORINE RETENTION.

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THIS paper deals with records of observations made in a case of long-standing neurasthenia and migraine in a well-preserved man aged 43 years, who had not been strong from birth and who had suffered from liver complaint when young. There was also a history of scarlet fever complicated by abscesses in the neck. From the age of 8 to 12 years he was much stronger; a meat diet was prescribed; he was able to take a great deal of exercise, mainly bicycling. From 12 to 16 he went to school in France, where he was badly fed and was practically without exercise. He returned to England overgrown, thin, and weak. It was subsequent to these experiences that his headaches commenced. From 17 to 24 he was continually travelling, mainly on the continent, but he also visited the Colonies and America. From 21 to 31 he was subjected to serious family and financial worries in addition to excessive work. During this period he consulted Dr. A. Haig and adopted his diet for nearly a year without benefit; large doses of salicylate of sodium and bromide of potassium were prescribed. Though he resumed a meat diet he was still under the influence of the "uric acid idea," which induced him to take only a small proteyl ration; at this time he became a teetotaler. He paid three visits to Lahmann's sanatorium at Dresden, where the "poisonous" qualities of meat were again insisted on; in addition, he was informed that sodium chloride was a poison, and that it should be omitted from his food. Since this period—that is to say, since 1905—he has omitted the use of salt except on rare occasions; he also instructed his cook not to use it in cooking. His health became so great an anxiety to him five years ago that acting under medical advice he gave up his work as a manufacturer, built a house in the country and went in for fruit-farming. He lived mainly on cheese and poultry, and he undertook as much physical work as his strength allowed. During the past year he has been reduced to the minimum of both physical and mental work. He began to complain of cardiac weakness, with the most invincible depression and lassitude.

Present condition.—His height was 1·68 metres, weight (stripped) 75·6 kilogrammes; chest measurements, 107 centimetres in inspiration and 90 centimetres on expiration; and circumference at the level of the umbilicus, 93 centimetres. The lips were a good colour. Nothing abnormal was discovered on examination of the heart or lungs. His blood pressure was 70 millimetres of Hg. Though his appetite was "too good" he had not complained of indigestion, and his bowels were practically always regular. The abdominal walls were flabby and covered with fat. There was a distinct bulge of the muscular wall below the umbilicus. Fæces and a decided spasm were felt on examination of the descending colon. The transverse colon could not be felt. He stated that he experienced a decided sensation of support and relief on firm pressure being applied over the pubes from behind (Glénard's "épreuve du sangle"). The charcoal test was carried out. 12 charcoal lozenges were given at night; the fæces were not discoloured till the second day; on the third day only a small quantity was found in the first part of the motion. This showed an early stage of coprostasis from spastic colon.

During the time the patient was under observation he was directed to take the minimum of exercise, to do everything slowly, never under any circumstances to get fatigued mentally or physically, to abstain from pappy starch foods, to "poltophagise" his dextrinised starches as carefully as possible, and to keep the colon empty with cascara and occasional water enemas. The main indications, revealed by the urinary analyses, were to secure dechlorination by as simple means as possible, and to administer magnesium, calcium, and phosphorus in the form of eggs. It was clear that the full re-mineralising ration (earthy and vegetable salts in addition to eggs and meat) produced too great a reaction as it changed the $\frac{\text{day}}{\text{night}}$ quotient from 1·1 to 0·7 in the case of urea, and from 1·0 to 0·6 in the case of uric acid. (See diagrams 1 and 2.) During the rest of the time he was under observation he was allowed rather more than his ordinary ration without vegetable salts.

The analytical observations found to be associated with subjective sensations.—The chief subjective sensations complained of were as follows: 1. Sensations of exaggerated fatigue, which the French express by the word "courbature" and the Italians by "taglia gambe" (literally, the legs cut from under one). 2. Mental depression of the overwhelming, unreasoning kind so characteristic of "neurasthenia." 3. Headaches lasting sometimes as long as three days, accompanied by the usual migraine symptoms; they usually caused insomnia, as he was obliged to sit up in bed to ease the pain; so soon, however, as he slipped down he was awakened with a fresh exacerbation. Depression and fatigue sensations were always associated, analytically, with "Joulie" hypoacidity and more or less decided increase in the "Jacquemet" reaction; on several occasions the tube used in the latter test could be held upside down for as long as 10 seconds before the layer of colloid would allow it to fall. These symptoms were invariably and quickly removed by means of not more than 70 drops of phosphoric acid. On each occasion there was a decided increase in the indican.

When he complained of depression alone hypoacidity was not always associated with the symptoms, the urine being occasionally even hyperacid.

Details of the dechlorination (*Chart 3*).—For 23 days out of the 44 there was a rigidly chlorine-free diet; on the other days the patient took ordinary hotel food, not adding any salt to it. As in this case there was a decided distaste for salted foods he partook sparingly of any salted dish. I have made a very liberal estimate of the error due to the salt added in the cooking processes—viz., 6 grammes a day—while he was on ordinary diet. Under these circumstances the total dechlorination was 184–12,[1] or 172 grammes, and 263·63–126 = 137·63—in all 309·63 grammes. The comparison with the French standards of the normal quantities for the various urinary ingredients is shown in Table I. Table II. shows the $\frac{\text{day}}{\text{night}}$ averages. Table III. (*a*) (*b*) (*a*) shows the results of the renal permeability tests which were made by Dr. Carlo Gennari, who has worked for some years in the laboratory of Professor Angelo Ceconi of Turin, at this subject, and who has published among other contributions, "Contributo allo Studio della Insufficienza Renale."[2] He informs me that he has not infrequently found evidence of chlorine retention without renal lesions mainly in cases of anæmia. In this case he has no hesitation in saying that the evidence shows conclusively that there is a normal reaction as irregularities of excretion occur not only in the case of uric acid and urea, but also in that of the other urinary constituents, they are, in all probability, subordinate phenomena. In this case one is able, thanks to Dr. Gennari's careful work, to eliminate any considerations of renal insufficiency, so that the force which retains the chlorides in the tissues must necessarily operate in the cells themselves. I suggest that it is only reasonable to conclude that the retention is present in order to maintain that balance between colloids and crystalloids which is a *sine quâ non* of life. I have given reasons elsewhere for the opinion that it is necessary to prescribe for these conditions, together with an optimum environment such a ration as will enable the tissues to reconstruct themselves in order that oxidation should be carried on in a normal fashion. The type of reaction found in the case of urea and uric acid (see Charts 1 and 2) merely serves to illustrate what has always been a guide to rational therapeutic measures—viz., to produce the desired effect with the simplest possible means. This point is well illustrated in the analyses recorded in Table IV. These observations were made in the case of a lady, aged 64 years. I look on this reaction as being an indication that the tissues react too strongly to the meat, &c., and that one should take care to steer between the Scylla of insufficient nourishment and the Charybdis of irritation. In my opinion, analyses showing such an extreme reaction

CHART 1.

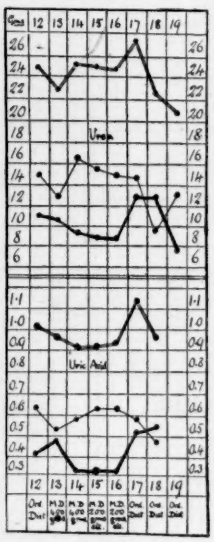
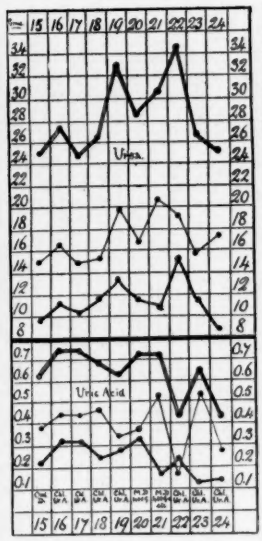
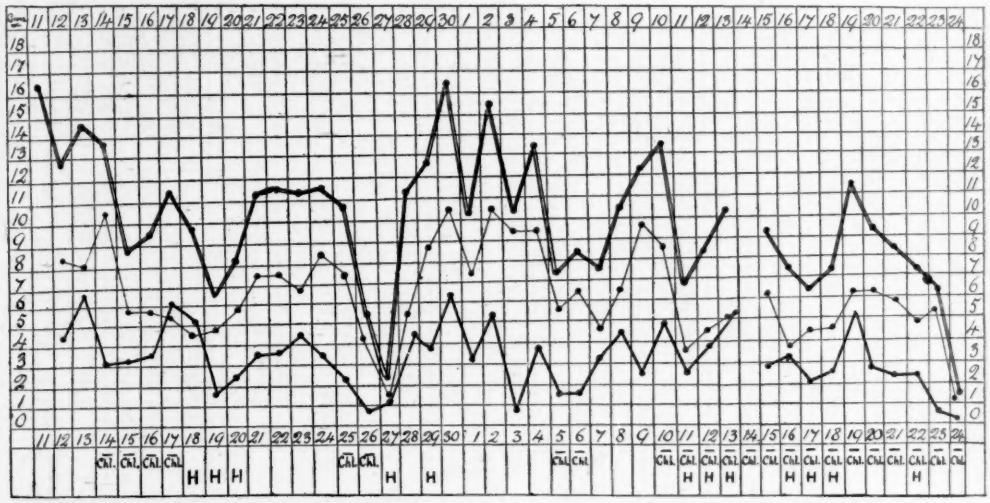


CHART 2.



CHARTS 1 and 2.—Urea and uric acid analyses. Total indicated by double line, day by light line, and night by heavy line.

CHART 3.



Illustrating analysis of chlorides in dechlorination. Total indicated by double line, day by light line, and night by heavy line. H equals headache, – Chl, chlorine-free diet.

to the chloride, the water, and the methylene blue test; in other words, that there is no evidence of renal inadequacy.

In reviewing the facts of this case in order to decide on the details of treatment, it is quite clear that chlorine-retention dominates the clinical picture. In this condition (Table IV.) amount to the necessity of not only reducing the meat ration to a minimum, but the proteid ration as well to half the normal quantity.

Therapeutic measures recommended.—A Glénard's belt with gentle abdominal exercises and most minute care in emptying the colon, if necessary by enemata; 100 and 150 grammes respectively of grilled lean meat on alternate days, three eggs daily, one or two tablespoonfuls of sour (lactic

[1] 7 grammes of added chloride with 5 grammes added by Dr. Gennari. (See below.)

[2] Il Morgagno, N. 4, 1909.

CHART 4.

Dates.	Bath	Total Vol.	Spec. Grav.	Solids	Total Solids	Solids Acidity $\frac{N}{10}$ H_2SO_4	Solids Alkalinity Ratio	DSN Acidity	DSN Alkalinity	Total Fæces Cc.	Total Fæces Acidity	DSN Fæces Acidity	Total P_2O_5	DSN P_2O_5	DSN Total Earthy Phos.	DSN Mag. Phos.	Total Calc. Phos.	DSN Total Calcium	Total Calc.	DSN Total NH3 Ppt. Calc.	Total NH3 Ppt. Calc.	DSN Urea	Total Urea	DSN NH_3	Total NH_3	DSN Uric Acid	Total Uric Acid	DSN Indican	Total Indican	DSN Total Chlorides	Total Chlorides	Wt.	Dates.
March 11		1170	1025		63·8	138	1·7		458				422		·708		·845		·834		2·13			·391							166	March 11
" 12	7/10 4/10	1110	1021 1026	30·8 24·2	85·0	140 40	4·6 1·1	266 228	494	193 165	523	173 138	357	266	·624 ·124	628	·395 ·124	393	·320	96	2·46			·466	1·43	·472	·043	·42	98	8·76 4·72	17·48	80 30	" 12
" 13	5/10 4/10	1130	1024 1026	30·0 26·9	56·9	16 12	0·8 0·3	217 261	478	135 146	271	180 172	357											·573 ·433	·986	Nil.				8·58 6·72	14·8	70 60	" 13
" 14	7/10 3/10	1010	1021 1024	30·8 25·8	56·6	140 120	4·7 4·1	282 246	474	133 113	246	176 146	266											·826	·140	·236	·041	·324	·140	·96	10·48 8·0	13·48	80 60	" 14
" 15	5/10 2/10	870	1024 1016	31·0 24·4	47·4	36 24	1·3 0·6	242 203	455	176 151	296	146 123	362											·805	·146	·495	·002	·364	·143	·95	5·63 3·68	9·46	90 60	" 15
" 16	5/10 3/10	810	1023 1016	30·7 25·8	43·8	120 80	4·2 3·2	317 276	493	140 118	323	118 98	325											·615	·146	·294	·061	·34	Nil	Nil	4·9 3·72	9·62	80 60	" 16
" 17	7/10 3/10	1210	1016 1015	24·0 21·0	37·0	104 84	4·1 3·6	266 228	472	138 118	350	163 139	342											·452	·268	·224	·013	·542	Nil	Nil	5·47 4·01	11·87	130 80	" 17
" 18	3/10 4/10	730	1021 1028	18·4 23·7	46·1	8 12	0·5 0·3	171 244	415	122 172	169	98 138	275											·452	·162	·224	·095	·322	·74	·60	4·68 5·16	9·84	80 80	" 18
" 19	5/10 2/10	620	1024 1026	24·2 19·2	39·5	14 10	0·6 0·3	224 216	440	158 123	281	150 119	284											·453	·243	·221	·026	·373	·16	·58	4·96 4·06	9·02	70 120	" 19
" 20-24	6/10 4/10	1122	1023 1023	30·4 24·3	53·7	101 84	3·6 3·4	307 235	529	131 124	245	173 149	295											·472	·282	·218					7·35 3·34	10·75	92 130	" 20-24
" 2630	6/10 4/10	1046	1021 1024	28·4 23·3	44·2	92 76	0·8 0·7	233 204	430	165 140	326	163 139	325											·346	·21	·196					6·74 3·72	9·76	100 110	" 26-30
April 1-5	6/10 5/10	1216	1021 1019	32·3 26·9	53·2	87 74	1·7 1·5	290 253	633	162 147	309	249 217	345											·465	·273	·211					8·52 2·95	11·47	180 180	April 1-5
" 6	5/10 3/10	870	1025 1026	31·6 24·5	49·1	152 120	5·0 3·9	187 144	337	157 114	271	137 114	271											·344	14·7 9·8	24·5 24·5			228 180	288	6·38 1·74	8·12	90 150	" 6
" 7	6/10 3/10	980	1021 1026	32·5 25·8	44·1			314 228	542	136 114	290	187 163	353											·383	14·6 10·3	25·1 24·4			Nil 98	90	4·77 3·76	7·84	130 110	" 7
" 8	5/10 3/10	900	1024 1025	27·6 20·5	48·3	78 72	3·0 3·8	334 228	562	187 140	297	235 188	386											411	14·5 10·8	25·1 25·1			280 224	80	6·62 4·14	10·76	80 80	" 8
" 9	5/10 3/10	980	1022 1024	27·0 21·2	44·2	128 92	4·8 3·6	330 264	536	144 104	248	227 175	377											·442	15·5 8·9	24·4 17·8			Nil	Nil	9·72 2·67	12·39	60 120	" 9
April 15	6/10 4/10	1010	1022 1022	28·6 18·8	47·4	120 80	4·3 4·3	128 128	386	96 76	172	233 187	390	671 ·4	811 ·82	1·22	708	845	878 ·06	438	2·91 ·08	2·13	276	·173	16·2 9·44	26·1 21	·248	·601	Nil. 40	40	6·72 2·88	9·61	130 80	April 15
" 16	5/10 4/10	940	1025 1024	29·6 19·8	39·4	108 100	3·6 3·0	347 278	611	187 114	301	257 174	448	82 4	1·22	1·22	725	924	1·04 443	1·41 ·373	1·82 ·08	4	1·22	1·63 ·32	16·3 11·3	29·5 21·5	·452	·872	2·16 1·80	296	3·83 3·16	7·49	140 110	" 16
" 17	5/10 3/10	810	1027 1026	30·7 18·7	42·8	84 68	3·2 2·6	349 296	644	174 144	291	238 202	440	82 4	1·22	1·63	725	924	1·04 443	1·41 ·373	1·82 ·08	4	1·22	1·63 ·32	16·6 10·7	29·7 21·7	·446	·873	2·10 1·82	312	4·4 2·7	6·8	110 140	" 17
" 18	4/10 3/10	810	1027 1028	29·1 19·8	47·4	86 92	3·5 4·6	354 279	613	192 149	291	257 223	435	852 372	1·06	1·06	924	1·06	1·84 ·332	1·93 ·118	1·84 ·35	4	1·22	1·72 ·32	14·4 11·4	26·3 21·6	·374	·694	1·92 1·60	252	4·2 2·48	7·18	100 160	" 18
" 19	5/10 4/10	1350	1018 1022	32·3 22·3	55·0	92 76	4·6 3·8	403 327	760	224 184	376	334 274	640	852 606	1·06	1·06	1·06	1·06	1·84 ·433	1·93 ·273	1·84 ·35	4	1·22	1·72 ·32	19·8 13·4	35·2 24·3	·465	·865	2·46 1·96	320	6·2 3·73	11·93	130 80	" 19
" 20	6/10 3/10	1000	1024 1024	32·1 20·5	52·6	120 76	4·1 2·7	317 242	634	193 142	335	291 235	626	673 244	1·06	1·06	1·06	1·06	1·84 ·446	1·93 ·266	1·84 ·72	4	1·22	1·72 ·32	16·6 11·7	28·3 19·6	·309	·596	2·46 1·76	352	6·75 3·52	9·46	90 130	" 20
" 21	6/10 3/10	1010	1025 1026	31·1 24·9	57·0	152 68	3·6 3·2	306 238	647	172 160	372	446 231	702	833 124	1·06	1·06	1·06	1·06	1·84 ·611	1·93 ·144	1·84 ·72	4	1·22	1·72 ·32	20·3 10·7	31·5 16·1	·374	·772	2·46 1·71	324	7·01 2·24	9·25	110 140	" 21
" 22	5/10 4/10	970	1025 1022	30·5 18·3	49·3	84 76	1·5 4·3	346 279	646	174 139	313	304 267	576	771 46	1·06	1·06	1·06	1·06	1·84 ·447	1·93 ·255	1·84 ·32	4	1·22	1·72 ·32	19·6 16·3	34·2 26·6	·203	·446	2·46 1·96	422	6·65 2·14	7·2	110 160	" 22
" 23	6/10 3/10	940	1024 1026	33·7 22·3	49·4	92 68	2·0 3·7	305 218	587	193 138	367	308 236	584	846 196	1·06	1·06	1·06	1·06	1·84 ·872	1·93 ·247	1·84 ·395	4	1·22	1·72 ·32	16·4 10·4	26·4 16·5	·334	·726	2·46 1·76	352	6·75 3·28	10·03	130 150	" 23
" 24	6/10 4/10	1100	1016 1016	27·4 23·8	36·2	116 92	5·9 6·3	344 272	576	172 137	304	247 220	467	774 259	1·06	1·06	1·06	1·06	1·84 ·973	1·93 ·288	1·84 ·633	4	1·22	1·72 ·32	16·9 8·3	29·2 14·2	·462	·782	2·46 1·71	420	7·01 2·18	9·19	100 140	" 24

Table of analyses. Total acidity and calc. chl. acid. are expressed in cubic centimetres of $\frac{N}{10}$ oxalic acid. The P_2O_5 acidity is expressed as cubic centimetres of $\frac{N}{10}$ P_2O_5.

acid) milk, the remainder of a ration of 80 grammes of proteid to be made up by fish or casein freshly prepared by citric acid. It was particularly insisted on that no proteid should be taken unless it was quite fresh. The vegetable salts of 500 grammes of fresh vegetables were ordered to be taken, with care because of the type of reaction shown in Charts 1 and 2. They were to be omitted whenever the depression following their ingestion lasted more than an hour or when the headaches recurred. As during the above observations the blood pressure had already risen to 95 millimetres, only 0·5 gramme of calcium carbonate was given; this was to be increased or diminished as the blood pressure rose or fell. 2 grammes of hydrate of magnesium were given as well as a small ration of iodine in organic combination.

The story of the devices employed for the recovery of health in this case is only too familiar to those who are suffering from similar conditions. Their life resembles the movements of a rudderless ship, experimenting alternately with dangerous heresies in diet, with exercise, with rest or holidays, continually endeavouring to imitate the attributes of the healthy without the necessary protoplasmic equipment.

Those bio-technical devices included under rest, exercise, diet, mental education, lessons in adaptation, &c., require so nice an adjustment to the needs of any given case that they necessitate a thorough investigation before a definite scheme can be decided on. This case, for instance, has been under the care of no less than 21 medical men of all degrees of eminence, and I am informed that their prescriptions were even more numerous. The insidious beginnings of such conditions are accidental; in this case the faulty adaptation of the French boarding school provided him with tissues that were deficient in certain of their chemical constituents (probably the earthy salts and phosphorus), a deficiency which finally culminated in the "state of matter" I have endeavoured to portray. In my own case[3] it was the excessive fatigue and faulty adaptation of my medical student life, followed by some three years' hard work as a house surgeon, several attacks of influenza, injudicious dietetic experiments, excessive exercise, &c., which started me on the long road which leads to destruction. Yet I have no hesitation in stating my conviction that in both this case and my own recovery of health and efficiency, and successful adaptation to environment would have been possible at any time during the past 15 or 20 years with a comparatively small expenditure of time and money.

It is impossible to exaggerate the harmful and even tragic consequences which result from encouraging the popular neuropathic explanations of these conditions, most of which, I believe, can be shown to be more measurably definite than many of the classical diseases. Is it possible for the new school of psychopaths by any of their devices to add 1 gramme of chloride to the urine in such a case as this which they would confidently pronounce to have "no organic disease"?

On the other hand, the inability to recognise the necessity for a reasoned and reasonable progressive mental education in such cases is to confess oneself an indifferent practitioner. The first step is to demonstrate to the patient's satisfaction the connexion between material causes and psychical phenomena, such as, for example, the faculty of substituting a state of placid equanimity for the miserable condition of hypoacidity in a few minutes with phosphoric acid or by showing that suicidal thoughts will disappear in a few days by attention to the bowels, &c.

A matter calling for far greater effort is the difficulty of dealing with that terrible harvest of ideas and suggestions which have been gathered from the inconsistencies and follies inseparable from the lay interpretation of the current psychopathic origin of "nerves" and "hysteria." Many cases are practically a museum of fads, fancies, and remedies, where sense and nonsense are so inextricably interwoven as to be no longer recognisable. So soon, however, as cases can be convinced, either by making some simple observation on themselves or by means of some other device or suggestion, that their disabilities arise from measurable physical causes, they will frequently be found to bear their infirmities with a dignity, a silence, and a composure which were impossible while they were being demoralised by having them attributed either to some reprehensible mental or moral infirmity or to causes as remote and mysterious as those of mediæval witchcraft.

TABLE I.

Normal Quantities of Urinary Constituents. Weight 64 kilos				
Constituents	Normal per kilo	Total Normal Weight	First seven Days	Last Six Days
Volume	20 ccs.	1380	1121	1052
Solids	0.84 grm.	57.9 grms.	54.4 grms.	49.1
TAcidity	0.03 "	2.07 "	3.53 "	4.03
P_2O_5	0.042 "	3.1 "	2.64 "	3.69
Urea	0.42 "	28.9 "	23.9 "	28.2
Uric Acid	0.01 "	0.69 "	0.983 "	0.638
Chlorides	0.175 "	12.00 "	9.75 "	7.31

TABLE II.

Total Day / Night Averages.			
Volume	1·4	High 2·3	Low 0·6
Solids	1·4	1·9	0·6
Chlorides	2·4	10·2	0·8
P_2O_5	1·1	2·4	0·5
Urea	1·3 & 1·7	1·8 2·0	0·7 1·2
Uric Acid	1·4	1·8 2·6	0·6 0·7
NH_3	1·4	2·6	0·5

TABLE I.—Comparison of the normal average quantities of the urinary constituents.

TABLE II.—Showing average $\frac{\text{day}}{\text{night}}$ quotients.

TABLE III.

(a)

Salt Test April 10 1910				
Hour	Volume	Spec. Gravity	% NaCl.	NaCl.
7 a.m.	5 grms. of	NaCl	Taken	
8 "	54 ccs.	1025	16	0·86
9 "	65 "	1024	17	1·105
11 "	205 "	1025	15	3·27
2 p.m.	215 "	1021	13	2·79
6 "	240 "	1013	8	1·92
Total	779 "	1023	11	8·56
6 p.m. to 7 a.m.	620 "	1023	8	4·96

(b)

Permeability to Water April 11 1910				
Hour	Volume	Spec. Grav.	% NaCl.	NaCl.
7 a.m.	500	c.cs. of	Water	Taken
8 "	130 ccs.	1007	4·5	0·58
9 "	80 "	1014	6	0·48
11 "	70 "	1021	7·5	0·52
2 p.m.	170 "	1013	7	1·19
6 "	180 "	1021	5	0·9
Total	630 "	1016	5·5	3·45
6 p.m. to 7 a.m.	570 "	1023	5%	2·5

(c)

Hour	Volume	Spec. Grav.	% NaCl.	NaCl.	Dates
7 a.m. to 7 p.m.	800	1014	5·5	4·4	April 12th
7 a.m. to 7 p.m.	850	1021	4·5	3·82	
7 a.m. to 7 p.m.	800	1016	6·25	5	April 13th
7 a.m. to 7 p.m.	600	1023	8·5	5·1	

Renal permeability test. On April 12th 0·25 gramme of methylene blue was taken at 7 A.M. 7.30 A.M., green colouration; 8 A.M., intense blue colour; 9 A.M., very intense blue colour. The emission was continuous. April 14th, 7 A.M. to 7 P.M., volume 560 c.c.; specific gravity, 1021; NaCl per cent., 8·5; NaCl, 9·76. Colour disappeared at 2 P.M. Duration of emission, 56 hours.

TABLE IV.

Nos.	D & N Urea	Total Urea	D & N Uric Acid	Total Uric Acid	Food Taken
1	8·8 / 6·3	14·8	·45 / ·201	·651	Ordinary Diet
2	13·4		·674		300 grms. Mutton, Minerals
3	11·6 / 15·4	27	·775 / ·595	1·37	" "

Record of analyses of urea and uric acid showing an excessive reaction to a meat ration.

Ration chart.—March 12th: Ordinary hotel diet. March 13th and 14th: 400 grammes of grilled mutton (lean). March 15th and 16th: 200 grammes of lean mutton, vegetable salts, with 2 grammes each of magnesium hydrate and calcium carbonate. March 24th: 300 grammes of lean mutton. March 25th: 50 grammes of chicken. From April 1st: 2·5 grammes of magnesium hydrate with 1·5 grammes of calcium carbonate daily. April 4th and 5th: 300 grammes of lean mutton. April 10th and 11th: Chlorine-free diet. April 17th, 18th, and 19th: Uric acid-free diet without chlorides except in a cheese dish taken on the 17th. (This only includes the chlorides contained in the cheese).

[3] Higgins: Observations on Blood Pressure, &c., THE LANCET, April 18th, 1908, p. 1156; Re-mineralisation, &c., THE LANCET, Feb. 19th, 1910, p. 432.

April 20th and 21st: 400 grammes of lean meat. On the 21st, in addition vegetable salts. April 22nd, 23rd, and 24th: Uric acid and chlorine-free diet, consisting of eggs, milk, and fruit.

Analytical methods.—The urea determinations were done by Brandeis's improved hypobromite method, using a titrated solution of ammonium chloride or sulphate so as to obviate the necessity of making calculations of the temperature and barometric pressure. For ammonia I have substituted Malfatti's process for Folin's; for sulphates, Folin's modifications; for uric acid, Hopkins's method and Folin's; reference to paper on urinary reactions, &c., for other methods. Chlorides by Mohr's process, subtracting one-tenth of the result. Volhard or Denigé's methods have been used where great accuracy was required.

A ROUGH BACTERIOLOGICAL EXAMINATION OF THE CONDITION OF SWIMMING-BATH WATER.

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SOME weeks ago Mr. Alderman Hirst, as chairman of the sanitary and education committees of the borough of Batley, suggested to me that it would be of interest if a bacteriological examination of the water in the borough swimming-baths was undertaken, in view of the fact that, apart from ordinary bathers, several hundred school children from the elementary schools in Batley regularly visited the second-class swimming-bath, and that a comparison of the water of this bath with the water in the first-class bath, after use by a number of bathers, would be instructive from a sanitary point of view. I heartily endorsed Mr. Hirst's proposal and took steps to carry out the examination, which I have now completed. The examination took place in the bacteriological laboratory of the public health department, Batley.

The first step was to take a sample of the water in its ordinary condition as it leaves the supply pipe, for without this knowledge the examination would not be conclusive. The result was a good one, showing that the Batley water from a bacteriological standpoint compares favourably with other water used for drinking purposes, it being water from the ordinary town's supply which is used for swimming-bath purposes. Plate preparations were made on gelatin and agar-agar, the former being incubated at 20° C. and the latter at 37° C., and the colonies forming were examined from day to day. According to Miquel's standard, pure water may contain from 100 to 1000 organisms per cubic centimetre, very impure being defined to contain 100,000 and upwards per cubic centimetre.

In the water under examination, taken from the supply pipe as it entered the bath, the number of organisms developing on gelatin, incubated at 20° C. and counted in 48 hours, equalled about 43 per c.c. of water. Coliform or intestinal organisms were present in 5 c.c. of water but not in 1 c.c.

A sample of the first-class swimming-bath water was then taken on June 16th, persons swimming in the water at the time of sampling, the water having been in the bath for three days, and 194 persons having bathed in it. The same process having been followed, it was found that about 2850 organisms were present in 1 c.c. of water. I found coliform or intestinal organisms present in 5 c.c. of water.

A sample of the second-class swimming-bath water was taken on the same date and under exactly similar circumstances. The water had been in the bath three days, and 767 persons, mostly children from the elementary schools, had bathed in it. This gave about 15,000 organisms per c.c. of water. Coliform or intestinal organisms were present in 0·5 c.c. of water but not in 0·1 c.c.

Another sample of the second-class water was taken on June 21st, the water having been in the bath for three days, and the number of bathers, mostly children from the elementary schools, amounting to 974. The number of organisms per c.c. of water in this sample was about 300,000. Coliform or intestinal bacilli were present in 0·5 c.c. but not in 0·1 c.c. Bacillus enteritidis sporogenes I found to be present in 10 c.c. of water.

Of the several samples of water examined I made various subcultures of the numerous colonies, with a view to ascertain as far as practicable the nature of some of the more numerous ones. Many of the bacilli isolated were harmless ones, although all were not. I found the bacillus prodigiosus present in each sample. The bacillus fluorescens liquefaciens was found in great numbers. This germ occurs in putrid infusions and also in sewage. The bacillus subtilis was found, as was also the bacillus proteus vulgaris. The latter is found in sewage water, and is one of the class of germs which cause putrefaction. It is also found in cases of abscess of the lungs and several diseases of the lung, &c. A number of colonies of moulds occurred in the samples of second-class bath water which I examined. The bacillus coli communis was present in samples of water from both the first-class and second-class baths. I found the staphylococcus pyogenes aureus present in great quantity. It must not be forgotten, however, that this germ is present normally on the skin of many persons. The streptococcus pyogenes aureus was also present.

The great difference found between the samples of water taken is most interesting, for in the case of the first-class swimming-bath water the first sample taken on June 16th, having been in three days and 194 persons having bathed in it, gave 2850 organisms per cubic centimetre, whereas in the sample taken on June 26th (which I did not examine, but which was examined elsewhere, as explained below), where the water had been in the bath for the same period, but only 127 persons bathed in it (instead of 194 in the other sample), the bacterial content of the sample was 219,000 organisms per cubic centimetre. This very great difference, it appears to me, can only be accounted for by the bacteriological condition of the bodies of the 127 bathers being in a much worse state than that of the 194 bathers on the previous occasion. The same peculiarity occurs in the case of the samples of second-class water as follows:—June 16th: Bathers, 767. Bacterial content, 15,000 organisms per c.c. Water in bath three days. The bacillus enteritidis sporogenes was found in this sample by Dr. P. L. Sutherland (see below). June 21st: Bathers, 974. Bacterial content, 300,000 organisms per c.c. Water in bath three days. Bacillus enteritidis sporogenes found in the sample which I myself examined. June 26th: Bathers, 938. Bacterial content, 63,000 organisms per c.c. Water been in bath four days.

The average number of organisms found in the two samples of first-class water was 110,927 per cubic centimetre. The average number of organisms found in the three samples of second-class water was 126,000 per cubic centimetre.

From the above it will be seen that in reality, although many more persons, mostly children, used the second-class water, it was not so very much worse than the first-class water. If so many organisms, pathogenic and non-pathogenic, are found in a cubic centimetre, it is interesting to speculate on the number of micro-organisms contained in a large swimming-bath full of water.

As I have previously pointed out, many of the organisms were harmless, but such was not entirely the case, and it can be easily understood how disease can be communicated from one person to another by the use of swimming-baths. Diphtheria germs can be found in the throats of persons who have had the disease, although they themselves present no signs of diphtheria, and all persons using a swimming-bath get more or less an amount of water into their mouths and nostrils whilst in the bath. Again, the germs of consumption could get into the water in a similar manner, and the prospect to swimmers who swallow mouthfuls of water containing the bacillus enteritidis sporogenes is anything but pleasant. Cases of sore eyes in children I have personally known to be caused through swimming in infected bath water, and it is an easy matter to speculate on the number of diseases which might be conveyed from person to person through the medium of polluted swimming-bath water. On the other hand, I cannot say that in my experience I have been able to trace many cases of infectious disease to swimming-baths, and one readily admits the great advantage to the health of a community from frequent bathing and washing. There is no doubt that persons whose bodies are frequently washed are healthier than are those who do not cleanse themselves regularly, and hence in the long run the advantages obtained from the use of swimming-baths are undoubtedly greater than the disadvantages.

The only practical conclusion I can arrive at is that the baths should be emptied at more frequent intervals, although here I am again aware of the difficulty on the ground of expense. Each time they are emptied the sides and floors should be thoroughly scrubbed with an efficient disinfectant before refilling. At present we are faced with the fact that

this analysis tells us that the water examined was nothing more or less than dilute sewage, and this condition can be remedied by the course mentioned. The baths manager told me that numbers of pediculi capitis are found on the towels after use, and they are also found sometimes in the dressing-boxes. One is aware that in many cases the condition of the hair of the girls in the schools is bad, and it should be insisted upon by the authorities that children whose hair is known to be verminous should not be allowed to use the bath at all whilst in that condition. Another useful regulation would be that all girls with long hair should be compelled to wear bathing caps whilst in the water.

I am aware that in certain towns the experiment of treating the water in the swimming-baths by certain chemical reagents, such as chlorine, has been tried, and in others frequent filtration of the water has been resorted to, and I believe the results have not been unsatisfactory. To my mind, however, there is an objection to this water being used over and over again, for although it may be comparatively pure after treatment, from a chemical and bacteriological point of view, there is a feeling that, after all, one is only bathing in water that has previously been bathed in by hundreds of other people, and the feeling is, to put it mildly, not a nice one, although, of course, I am aware that to the chemist and bacteriologist this objection is nothing more or less than a sentimental one.

In addition to the examination of the water carried out by myself in Batley, I forwarded some samples to Dr. Sutherland, bacteriologist to the West Riding county council, and I append the reports on these waters which were received by me from him.

16th June.—First-class swimming-bath in use at time of sampling. Bacterial content: Number of organisms developing on gelatin incubated at 20° C. and counted in 48 hours = 2390 per c.c. of water. Coliform or intestinal organisms: Present in 10 c.c. of water but not in 5 c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

16th June.—Second-class swimming-bath in use at time of sampling. Bacterial content: Number of organisms developing on gelatin incubated at 20° C. and counted in 48 hours = 16,950 per c.c. of water. Coliform or intestinal organisms: Present in 0·5 c.c. of water but not in 0·1 c.c. Bacillus enteritidis sporogenes: Found in 10 c.c. of water but not in 1 c.c.

22nd June.—First-class swimming-bath (from supply pipe entering bath). Bacterial content: Number of organisms developing on gelatin incubated at 20° C. and counted in 48 hours = 43 per c.c. of water. Coliform or intestinal organisms: Present in 5 c.c. of water but not in 1 c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

22nd June.—Second-class swimming-bath in use at time of sampling. Bacterial content: Number of organisms developing on gelatin incubated at 20° C. and counted in 48 hours = 300,000 per c.c. of water. Coliform or intestinal organisms: Present in 0·5 c.c. of water but not in 0·1 c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

28th June.—First-class swimming-bath. Bacterial content: Number of organisms developing on gelatin incubated at 20° C. and counted in 48 hours = 219,000 per c.c. of water. Coliform or intestinal organisms: Present in 1 c.c. but not in 0·1 c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

28th June.—Second-class swimming bath. Bacterial content: Number of organisms developing on gelatin incubated at 20° C. and counted in 48 hours = 63,000 per c.c. of water. Coliform or intestinal organisms: Present in 0·1 c.c. but not in 0·01 c.c. Bacillus enteritidis sporogenes: Not found in 10 c.c. of water.

In conclusion, I desire to thank Dr. Sutherland for enabling me to publish his interesting bacteriological report.

Batley.

A CASE OF PERNICIOUS ANÆMIA TERMINATING IN ACUTE DIABETES.

BY JOHN PARKINSON, M.D., B.S. LOND.,

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A MAN, aged 49 years, was first admitted to the London Hospital on June 7th, 1909, under the care of Dr. Robert Hutchison. He complained of lassitude and general weakness, with occasional vomiting and diarrhœa. He stated that about a year before (May 15th, 1908) he was one of a jury summoned to the inquest on a considerably decomposed body which had been washed ashore. The stench encountered on entering the mortuary affected him severely, inducing an attack of violent vomiting and diarrhœa, which continued through the rest of that day and night. To this the patient and his wife ascribed the onset of the present illness. Ill-health, with liability to vomiting and diarrhœa, had continued from that date, and had become worse during the last few months. The vomiting had no definite relation to food and occurred chiefly at night. In addition, he suffered from a "heaviness" and "a feeling of wind" in the epigastrium. His appetite had been fair. His previous health had from boyhood been very good, except for an attack of gonorrhœa at the age of 19. There was no history of syphilis.

On admission the patient appeared to be well nourished, but the skin was pale and of a lemon tint, and the mucous membranes were very anæmic. There was neither oral sepsis nor stomatitis. There was no evidence of disease of the heart and lungs. Percussion showed the lower edge of the liver to be just below the costal margin, but neither liver nor spleen was palpable. The superficial glands were not enlarged. The knee-jerks were present, the pupils reacted to light and to accommodation, and no mental change was noticed. Slight "pitting" was obtained on pressure over one ankle. There was no pyrexia while he was in hospital. The urine was examined on this and three later occasions. It was acid and of specific gravity 1020–1026. Albumin and sugar were absent. On the day after admission a test meal was given. This consisted of a large cup of weak tea and two small slices of toast. An hour later a stomach tube was passed, but the gastric contents were so thick and lumpy that they came with difficulty through the tube. Free hydrochloric acid was absent and only 10 cubic centimetres of decinormal NaOH were required to neutralise 100 cubic centimetres of the filtered gastric contents. Three weeks later a further test meal showed absence not only of any acidity but also of pepsin. It had no action on albumin when incubated at 37° C. for one hour.

Examination of the blood on June 10th showed: Poikilocytosis present, rouleaux formation slight; erythrocytes, 1,350,000 per cubic millimetre; hæmoglobin, 30 per cent.; colour index, 1·1; leucocytes, 1900 per cubic millimetre. No nucleated red cells were found. On June 25th there was a slight increase of erythrocytes and hæmoglobin. Eight normoblasts and two megaloblasts were seen while counting 200 leucocytes. Polychromatophilia and granular degeneration were present.

A diagnosis of pernicious anæmia ("Addisonian") was made. The patient was confined to bed. The diet consisted of peptonised milk, milk puddings, bread-and-butter, and lightly cooked eggs; fish and meat were added later. A mixture containing 3 minims of liquor arsenici hydrochloricus with 15 minims of dilute hydrochloric acid was given three times a day. The amount of the acid solution of arsenic (1 per cent.) was gradually increased in this prescription until 13 minims were being taken. On discharge on July 13th (five weeks after admission) a blood report showed: Erythrocytes, 3,012,500 per cubic millimetre; hæmoglobin, 75 per cent.; colour index, 1·2. One normoblast and one megaloblast were seen in counting 200 leucocytes. His colour was good, his strength had returned, and there was entire absence of symptoms. A brother has written: "The change in him was most remarkable; he looked and felt a new man both in body and mind."

After discharge the mixture of arsenic and hydrochloric acid was taken at home, and each month the patient came up to be seen by Dr. Hutchison. He appeared and felt quite well. The last of these visits was on Nov. 13th, three weeks before readmission and four weeks before death. On that occasion he still considered himself quite well and looked so; he was shown to a large class as an example of the remarkable remissions which occur in pernicious anæmia.

The patient was readmitted on Dec. 4th. He maintained that he had been perfectly well until ten days before, when, on looking into the mirror, he noticed that his gums were very pale. A day or two later there was general pallor and weakness and a rapid wasting began. In answer to particular questions, he said that thirst and some increase in the amount of urine had been present for only a few days before admission. The chief complaint, however, was of headache, nausea, epigastric discomfort, and great weakness and wasting. By a great effort he had journeyed several miles to the hospital, but was so exhausted that it was necessary to carry him in from a neighbouring station.

On readmission he was in a state of collapse and showed severe anæmia of the mucous membranes and the skin; the latter showed the lemon tint of pernicious anæmia. In addition the chest and back had a finely polished appearance. His weight was 8 stones 1 pound, being 11 pounds less than when discharged in July. The temperature was 98° F.; the pulse had a frequency of 100, was regular, of fair tension, but of small volume; the artery was not

palpable. The heart was free except for a hæmic murmur at the base. Examination of the lungs showed nothing abnormal, and neither liver nor spleen could be felt. The knee-jerks were present. Ophthalmoscopic examination showed pallor of retinæ and no other abnormality. The urine was examined on Dec. 5th and contained 5·5 per cent. sugar. The reaction was neutral and the specific gravity 1030. Albumin and diacetic acid were absent. Until the urine was examined it was thought that the case was one of an ordinary relapse in a subject of pernicious anæmia. His condition was so grave that restriction of diet was not attempted; milk, eggs, bread-and-butter, and fish were given. No medicine was administered except a little whisky. The patient became rapidly weaker and rather more drowsy than on admission. Thirst, nausea, vomiting, and epigastric pain continued. Wasting was marked, the eyes became sunken, and a smell of acetone was noticed in the breath. On Dec. 6th 58 ounces (1647 cubic centimetres) of urine were passed, containing 82 grammes sugar (5 per cent.); on the 7th 60 ounces (1704 cubic centimetres) containing 121 grammes (7·1 per cent.) were passed; and on the 8th 90 ounces (2556 cubic centimetres) were passed. A catheter specimen was obtained and subjected to several tests, which showed that glucose was present (5 per cent. in this specimen). A marked reaction to the ferric chloride test for diacetic acid was now present for the first time. The centrifugalised deposit showed some red blood corpuscles and hyaline casts.

A blood examination on Dec. 8th gave the following result: Poikilocytosis present, rouleaux formation slight; erythrocytes, 2,050,000 per cubic millimetre; hæmoglobin, 40 per cent.; colour index, 1; leucocytes, 2000 per cubic millimetre. No nucleated red cells were seen. On the 9th he was very drowsy, but could be roused for a few minutes without difficulty, even four hours before death. The breathing was regular and of frequency 24; it was neither laboured nor noisy. The pulse became smaller and shortly imperceptible. Death occurred on the evening of the 9th, about 15 days after the onset of symptoms. There had been a loss of 12 pounds in weight since the 4th. The blood and gastric examinations, with the last report on the urine, were made by Dr. P. N. Panton, clinical pathologist to the hospital.

Pathological Report by Dr. HUBERT TURNBULL, *Director of the Pathological Institute.*

The following is a summary of the necropsy held on Dec. 10th.—*Pernicious anæmia (acute diabetes):* Deep red marrow throughout femur. Red marrow in sternum and ribs. Enlarged, soft, red spleen (4½ ounces). Brown-yellow liver, giving marked iron reaction. Chronic gastritis. Anæmia of skin with slight lemon tint. Bright yellow subcutaneous fat. Teeth sound. Mouth clean. Small pancreas (1½ ounces). Heart (11½ ounces); no "tigering" of myocardium. Fatty atheromatous flecks throughout the aorta, with small calcareous plaques in the commissure, arch, and bifurcation. Congestion and œdema of emphysematous lungs. Fibrous pleural adhesions over right apex and left upper lobe. Fibro-calcareous nodules in bronchial glands. Congestion and severe parenchymatous degeneration of kidneys (12½ ounces), with small subcapsular cysts. Small ectopic suprarenal beneath the capsule of the right kidney close to the upper pole. Anæmia of brain (3 pounds 1½ ounces). Considerable marasmus. No urethral stricture. No deposit of urates in joint of great toe.

Microscopical Examination.

1. *Marrow of femur.*—Sections were stained by S. G. Scott's "tartrazin-Jenner" method, in hæmatoxylin and eosine and in Van Gieson's stain. The marrow is cellular throughout. The number of myeloblasts and myelocytes is much in excess of the number of erythroblasts and erythrocytes. Strands of erythroblasts are, however, conspicuous. There are few leucocytes. The megakaryocytes are few in number and of small size. The relative number of myeloblasts to myelocytes is abnormally high. The majority of the erythroblasts are megaloblasts; gigantoblasts are also present. The variation in the size of the erythrocytes is extreme, microcytes being present in addition to megalocytes and gigantocytes. The erythrocytes also vary in staining reaction. There are a few macrophages containing red corpuscles.

2. *Spleen.*—The Malpighian bodies are well developed; their borders are somewhat ill-defined. The pulp is very cellular, large numbers of both white and red cells being present. The arterioles in the Malpighian bodies have a thickened adventitia, whilst the muscularis is swollen and hyalin. The Malpighian bodies contain lymphocytes of normal appearance; in their periphery polymorphonuclear leucocytes are also present. In the pulp there are very large numbers of neutrophil polymorphonuclear leucocytes; eosinophil leucocytes are much less numerous. There are also considerable numbers of neutrophil and eosinophil myelocytes and a very few basophil myelocytes. Plasma cells are present in considerable numbers. The erythrocyte vary very much in size, both microcytes and megalocytes being present. There are a few normoblasts, megaloblasts, and gigantoblasts.

3 *Liver.*—There is no fibrosis. There is a little fatty degeneration of the cells surrounding some of the central veins. In tissue fixed in alcohol there is much granular pigment within the cell columns. This pigment is present throughout the lobules, but is much more abundant in the peripheral zone. It gives the Turnbull's blue and Prussian blue reactions.

4. *Pyloric portion of stomach.*—There is no recognisable atrophy of the tubules in the mucosa. But in the intertubular stroma there is an excessive infiltration by plasma cells and eosinophil and neutrophil polymorphonuclear leucocytes. Several small lymphatenoid nodules are present in the mucosa; they show no evidence of inflammation. In the muscularis mucosæ there is a considerable infiltration by lymphocytes, plasma cells, and eosinophil leucocytes. Some small groups of these cells are present in the muscularis, especially round the vessels. There is a slight increase in the interstitial tissue of the submucosa and muscularis.

5. *Body of pancreas.*—The lobules do not appear to be abnormally small. The cells of the acini are well formed and brightly stained. There are numerous islands of Langerhans; many of these are of large size. The cells of the islands show no sign of degeneration; they are of normal shape and their nuclear structure is very distinct. There is neither inter- nor intra-lobular fibrosis. There is no deposit of pigment.

6. *Kidney.*—The media of the arteries is thin and there is a little reduplication of the elastic lamina. There is no increase in the interstitial tissue. The cells of the first convoluted tubules are large and swollen with well-defined margin. The base is occupied by large fat globules. The rest of the protoplasm is opaque and granular. Many of the cells have no nucleus, in others the nucleus is pale and degenerate. The swollen cells in most of the tubules almost occlude the lumen; in a few tubules there are granular or vacuolar spherical bodies in the lumen. The cells of the ascending limb of the loop of Henle show very similar changes. In the second convoluted tubules there is much less fatty degeneration; in some there is slight catarrhal desquamation, or the lumen may contain some granular débris. A few fat granules are seen in many of the cells of the descending tubules of Henle and in the large collecting tubules. In many of the latter there is considerable catarrhal desquamation, in others there are hyaline casts. In the cells of the first convoluted tubules are a few fine granules of pigment which give the iron reactions. In the ascending limb of Henle's loop are large granules of yellow pigment which do not give an iron reaction. There is some swelling of the intercapillary substance of the glomeruli. No glycogenic degeneration is present.

The changes found macroscopically and microscopically show that pernicious anæmia was undoubtedly present. There is no definite evidence, however, of diabetes. The pancreas has been examined microscopically in the cases of diabetes which have come to the Institute in the last three years. In brief, it may be said that changes of three types have been found. In a very few cases, in the chronic form of the disease in old people, there has been a severe and obvious destruction of the pancreas by fibrosis or fatty infiltration. In one of these cases an acute pancreatitis was present in addition to the chronic. In another group of cases, especially in patients over 40 years of age, there has been a slight fibrosis or fatty degeneration, but the chief abnormality has been the small size of the lobules, the atrophic appearance of the acini, and the scarcity and small size of the islands of Langerhans. Although occasionally some slight pathological changes have been present in the islands there has been no evidence of complete destruction of these structures. Such changes as have been seen in the islands did not account for the diminution in their number. In a third group are found the majority of cases, including almost all those of young patients and of the acutest forms of the disease. Here the only abnormality has been the small size of the lobules, the atrophic appearance of the cells of the acini, and the scarcity and small size of the islands. These changes are slight, but they have been constant. The small size of the pancreas in the present case suggested that these changes would be found on microscopic examination. But the lobules do not appear to be diminished in size, the cells of the acini are large and well formed, and the islands are numerous and of good size.

The changes in the kidney in most cases of diabetes are so characteristic that a diagnosis of the disease can be made from microscopic sections or even from the macroscopic appearance. The kidneys are enlarged, and owing to engorgement and fatty degeneration they have a "terra-cotta" colour. On section the cortical pattern is often abnormally distinct, the labyrinths and pyramids of Ferrein being swollen. The fat lies in the bases of the cells of the first convoluted tubules, in the ascending limb of Henle's loop, and in less amount in the other tubules. The appearance of the first convoluted tubules is usually very characteristic. The cells are much swollen and peculiarly opaque, with well-defined margin. In paraffin sections a clear zone is present in the base of the cells, corresponding to the deposit of fat. In some cases the free extremity of the cell is distended by a large vacuole which gives the reaction of neither fat nor glycogen. Many of the nuclei are destroyed. The lumen is filled by spherical bodies, which are either granular and obviously protoplasmic or are vacuolar, resembling bubbles. These "bubbles" are neither fatty nor glycogenic. The spherical bodies appear to be derived from desquamated cells. This déoris is not, however, invariably present in the sections; where it is not present the swollen opaque cells may almost occlude the lumen. In the large majority of cases portions of tubules lined by clear, dropsical cells, which give the micro-chemical tests for glycogen, are present. This glycogenic infiltration is usually found in the intermediate zone of the kidney. The glomeruli appear large; their capillaries are engorged and the intercapillary substance is swollen and opaque. Catarrhal desquamation is frequently present in the large collecting tubules, in which there may also be hyaline casts. There is usually considerable œdema. This characteristic parenchymatous degeneration is doubtless merely secondary to the passage of sugar through the kidney. In the present case the kidneys were enlarged, somewhat soft, and swollen in appearance. They were of a yellowish colour but at the same time engorged, so that they had a tint not unlike terra-cotta. The swollen cortex was moist and showed an abnormally broad, vertical pattern. The kidneys thus differed markedly from the small, firm, dry, brown-yellow kidneys which are usually found in cases of pernicious anæmia. The severe parenchymatous degeneration found microscopically was of the type

found in cases of ordinary diabetes, although the most characteristic features were wanting.

To summarise the microscopic appearances of the pancreas and kidney it may be said that the appearance of the kidney is compatible with a diagnosis of ordinary diabetes or glycosuria and suggests that the pernicious anæmia was complicated by diabetes. But the pancreas shows none of the changes found in ordinary diabetes or glycosuria.

The clinical features, the blood reports, and the post-mortem examination establish the original diagnosis of pernicious anæmia. The association of severe glycosuria with diaceturia, and the concurrent thirst and rapid wasting, justify the further diagnosis of diabetes. The diabetes appears to have been of short duration because the urine was free from sugar throughout the first stay in hospital and the symptoms did not appear until 15 days before death. The symptoms were severe and the course rapid. The rapidity of the course cannot be ascribed to its occurrence in an emaciated individual, for the patient was not wasted before the onset of the symptoms. The short duration taken in conjunction with the severity of the symptoms and the early fatal termination justify the further definition of the disease as acute diabetes.

Acute diabetes is very rare, especially if cases with acute onset but chronic course are excluded. Cases where a temporary or symptomless glycosuria is followed later by an apparently acute diabetes (see Williamson[1]) must also be excluded. Naunyn[2] quotes several well-authenticated cases where death occurred in less than five weeks from the onset of symptoms. The oldest of these was 21 years of age. Acute diabetes usually occurs in the young, but on rare occasions it is found even in late life. Osler[3] has seen a man, 73 years of age, who died from diabetes within three weeks of the onset of symptoms. The rarity of acute diabetes, especially in later life, makes it less likely that it should occur merely as a coincidence in a man aged 49 years. Such a coincidence is still less likely because pernicious anæmia is not a common disease. The ordinary diabetes in man is usually, if not always, associated with changes in the pancreas. As may be seen in the remarks which Dr. Turnbull has kindly added to his report, he has found in a systematic microscopic investigation of the pancreas in cases of diabetes that certain finer changes are constant in the absence of coarse changes. Yet here there was an absence of both coarse and fine changes, and the pancreas, though small, was normal both macroscopically and microscopically. The diabetes, therefore, does not appear to have been one of the ordinary type, such as would be expected as a coincidence.

For these reasons it appears that the diabetes was in some way the direct outcome of the pernicious anæmia. A diabetes comparable to that which occurs in hæmochromatosis (*diabète bronzé*) might conceivably be caused by pernicious anæmia. Thus Quincke[4] mentions a case of pernicious anæmia in which pigment cirrhosis of the liver occurred. In the present case, however, the complete absence of pigmentation and cirrhosis of the pancreas shows that this explanation is untenable. Again, pernicious anæmia might possibly cause diabetes by alterations in the liver, brain, or kidney. But of such alterations no evidence was found in the post-mortem investigation. The changes in the kidney were apparently only such as occur from the passage of sugar through the organ. The morbid anatomy therefore gives no indication of the process which led to the diabetes. The diabetes appears to have been one of disordered metabolism without anatomical change.

When the patient was readmitted to hospital there was a definite increase in his anæmia. Not only did he appear much more anæmic than on his visit three weeks previously, but there was a fall in the blood of a million erythrocytes and 35 per cent. hæmoglobin since the estimation on his previous discharge. It is improbable that the increase in anæmia was caused by the onset of diabetes in which polycythæmia is the rule. Moreover, according to the patient, the symptoms of diabetes were preceded by symptoms of a relapse in the pernicious anæmia. He was positive that before he suffered from thirst and polyuria he had noticed pallor of the gums followed by general pallor and weakness. There can be little doubt, therefore, that the diabetes followed upon a relapse, and this suggests that the increase in the anæmia was a factor in the causation of the diabetes.

Insufficient oxygen supply either in animals or in man may lead to cellular degenerations. In the fatty changes due to severe or repeated hæmorrhages such a result is seen. Strauss[5] suggests that a specific relation may exist between the decrease in the hæmoglobin in the blood and these fatty changes. Repeated losses of blood in animals tend to cause an increase in the body fat. In addition to the notable retention of body fat in pernicious anæmia, fatty degeneration is one of the features of the disease. The profound anæmia is probably the important factor, though the unknown toxin may have some influence. Adami[6] believes that to the lowered oxygen capacity of the blood must be ascribed the diminished metabolism of pernicious anæmia and the storage of fat.

The effect of diminished oxygen supply on the metabolism of glucose has a more direct bearing on this case. Claude Bernard[7] was the first to show that hyperglycæmia resulted from repeated bleedings of dogs. Similar results have been obtained by more recent experimenters. In the metabolism of glucose, by the agency of certain ferments, the end products are CO_2 and water, when abundance of oxygen is present. In the absence of oxygen glucose may be easily changed, by mere splitting of the molecule, into lactic acid. The evidence for the formation of lactic acid from glucose is fairly complete (see Ryffel[8]), and many authorities believe that this change is the first in the metabolism of glucose and precedes the oxidative changes which then follow if oxygen is present. Araki[9] has carried out a long series of experiments on dogs to find out the effects of a deficient oxygen supply. The first method used was the direct limitation of oxygen in a closed chamber. Other methods of limiting oxygen, such as by CO poisoning or by asphyxia from strychnine poisoning, were used in other series of experiments. He found that in healthy dogs the result was the excretion of large quantities of lactic acid in the urine and in many cases of glucose. Parallel results were obtained whether direct or indirect methods of limiting oxygen were used. He concludes that as diminution of oxidation processes is the common factor, this is the cause of the abnormal metabolism. In the same way Underhill,[10] from his experiments on piperidin glycosuria, concludes that it is due to interference with respiration and a consequent deficiency of oxygen supply. Matthes,[11] in a critical review of Araki's experiments, agrees with his conclusions.

It has thus been shown that a lack of oxygen in animals may produce the excretion of glucose or of the closely related lactic acid in the urine. In man there are several comparable conditions. Thus, in asphyxia lactic acid has repeatedly been found in the blood. Asphyxia, whether from carbon monoxide poisoning, from amyl nitrate poisoning, or from the convulsions of epilepsy or strychnine poisoning, often causes glycosuria. Futcher,[12] indeed, states that carbon monoxide or carbon dioxide poisoning may cause not only glycosuria but even a true diabetes. It is interesting to learn that Strauss[13] has investigated the excretion of sugar after venesection in two cases of diabetes. In one case the amount of glucose excreted in the three days following venesection was more than double the amount excreted during the three days preceding it. In the other case a slight increase occurred.

The oxygen capacity of the blood is greatly reduced in pernicious anæmia. Lorrain Smith[14] has demonstrated this by an application of Haldane and Lorrain Smith's carbon monoxide method to patients with this disease. It was found that the average total oxygen capacity was reduced in pernicious anæmia to half the normal. To quote Lorrain

[1] Williamson: Diabetes Mellitus, 1898 (Pentland), p. 166.
[2] Naunyn: Der Diabetes Melitus, Nothnagel, Specielle Pathologie und Therapie, 1900, vii. (i.), p. 334.
[3] Osler: Principles and Practice of Medicine, 1909, seventh edition, p. 414.
[4] Quincke: Nothnagel, Diseases of Liver (translated by Stengel), 1903, p. 740
[5] Strauss: Von Noorden, Metabolism and Practical Medicine (translated by Walker Hall), 1907, vol. ii., p. 353.
[6] Adami: Principles of Pathology, vol. ii., 1910, p. 92.
[7] Claude Bernard: Leçons sur le Diabète et la Glycogenèse Animale, 1877.
[8] Ryffel: Quarterly Journal of Medicine, 1910, vol. iii., No. 10, p. 229.
[9] Araki: Zeitschrift für Physiologische Chemie, xv., 1891, pp. 335–370.
[10] Underhill: Journal of Biological Chemistry, 1905, I. i., pp. 113–129.
[11] Matthes: Von Noorden, Metabolism and Practical Medicine (translated by Walker Hall), 1907, vol. ii., p. 328.
[12] Futcher: Osler and Macrae, System of Medicine, vol. i., 1907, p. 752.
[13] Strauss: Von Noorden, Metabolism and Practical Medicine (translated by Walker Hall), 1907, vol. ii., p. 392.
[14] Lorrain Smith: Transactions of the Pathological Society of London, 1900, vol. li., pp. 311–329.

Smith: "Absolute loss of hæmoglobin, which in chlorosis does not occur, is seen to be here of primary importance. Total hæmoglobin has fallen to an average of 48 per cent. of the normal and contrasts with the average of chlorosis, which we found to be 95 per cent." There is, then, undoubted evidence that deficient oxygen supply can cause glycosuria in both animals and man, and it has been proved that the oxygen capacity of the blood is greatly reduced in pernicious anæmia. Consequently, glycosuria or diabetes might be expected as a complication of pernicious anæmia. This has indeed been suggested by French.[15]

It is remarkable that glycosuria and diabetes have rarely, if ever, been observed as complications of this disease. There is no mention of such complications either in the monographs of Addison, Byrom Bramwell, or Hunter; or in the articles of von Noorden, Cabot, and French in systems of medicine. Lazarus[16] says that the occurrence of sugar in the urine has never been reported. Von Noorden[17] has examined many cases for glycosuria in vain, but he found diacetic acid in the urine in four cases. In these it is, of course, possible that other factors, e.g., inanition, were operative. Von Noorden[18] has also observed the occurrence of a large amount of lactic acid in the urine of one of two cases of pernicious anæmia shortly before death. No alimentary glycosuria was found by Strauss[19] in six cases of pernicious anæmia after the administration of 100 grammes of glucose. Other observers have also obtained negative results. Hoppe Seyler[20] has made a suggestion that as unhealthy, e.g., fasting or fevered, dogs did not excrete sugar in Araki's experiments, this fact may account for the failure of various observers to obtain alimentary glycosuria in patients with pernicious anæmia.

My thanks are due to Dr. Robert Hutchison, who has kindly given me permission to publish this case, and to Dr. Turnbull for many valuable suggestions.

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A NOTE ON THE ABUSE OF PURGATIVES.

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IN the recent discussion upon the Treatment of Constipation, opened by Dr. J. F. Goodhart at the Section of Medicine at the annual general meeting of the British Medical Association held in London, not a few speakers laid stress upon the fact that constipation needed treatment in various other ways than by the administration of drugs.[1] Nevertheless, it was not quite clearly brought out that a great deal of chronic constipation is actually due to the abuse, that is to say the injudicious use, of purgatives during the preceding years. It is also important to distinguish between laxatives upon the one hand and purgatives upon the other. Even laxatives ought seldom to be used, and when employed they should only be prescribed with the greatest caution. The habitual use of laxatives during adolescence usually necessitates the resort to the use of purgatives in early adult life, and as the years go on stronger and stronger remedies become necessary, until finally none have the desired action at all.

It is very important to realise that, although it is relatively easy to produce an action of the intestine by means of a purge, this is a very different thing from curing constipation. Indeed, there can be no doubt that purgatives are administered far too indiscriminately, and that a great deal of constipation is increased rather than diminished by them, and that it may even actually be produced by them. Just as it is a natural instinct of the brain and body to go to sleep for a regular period in each 24 hours, so is it the natural instinct of the large intestine to empty itself periodically once every day. This regular habit should always be encouraged, and if boys and girls learned never to neglect the call of nature and always tried to have the bowels opened at the same time each day constipation would be almost non-existent. The difficulty is that, from carelessness and other causes, the action of the bowels may be postponed or responded to irregularly, with the result that, as time goes on, the bowel, brought up irregularly, shows its desire to act irregularly; some days there will be an action, other days not. Thereupon those who do not think sufficiently, or do not know what they are doing, at once either take or prescribe some purgative dose, such as castor-oil, salts, or even calomel, with the result that the contents of the bowel are driven through, it is true, and there is an apparent relief of the constipation; but the mere fact that there has been an over-action of the bowel to-day makes it all the more likely that there will be no action at all to-morrow and the next day, so that by that time another dose may seem to be required; and so the condition goes on from bad to worse because, instead of encouraging nature's natural tendency to act once each day, the bowel is forced periodically and left inactive in the intervals. There can be no doubt that a great deal of the chronic constipation of to-day is due to deficiencies of exercise and to the removal from our dietaries of many things which, being indigestible, used to pass through and increase the bulk of the residue, so that there was always an abundance of fæcal matter to be passed; but at the same time there is also little doubt that a great deal of this constipation is accentuated by the abuse of purgatives. The latter should be used with the greatest caution, and a strong dose should never be given when a mild dose would suffice. If the case is merely one of simple constipation it is better to spend some weeks or months trying to coax back the regular habit by getting the patient to try hard at a regular time each day, at the same time giving him more fluids to drink and some foods with an insoluble residue to eat, than to give laxatives at all.

It should be noticed that the word "indigestible" really has two entirely different meanings. It may be used to denote something which, if eaten, will produce indigestion; in some individuals this applies to such things as pork, for example. It is not in this sense that the word is employed above, but rather is it used to denote those substances which the juices of the alimentary canal are unable to dissolve, and which therefore pass through undigested. They do not produce indigestion, and yet they are indigestible because they cannot be digested. Examples of these kinds of foodstuffs are the fibre of green vegetables and fruits, and portions of husks in porridge and brown bread.

Wimpole-street, W.

[15] French: Art., Pernicious Anæmia, Allbutt and Rolleston's System of Medicine, vol. v., 1909, p. 734.
[16] Lazarus: Nothnagel, Diseases of the Blood (translated by Stengel), 1905, p. 265.
[17] Von Noorden: Lehrbuch der Pathologie des Stoffwechsels, 1893, p. 317 and p. 353.
[18] Von Noorden: Idem, p. 337.
[19] Strauss: Metabolism and Practical Medicine, 1907, vol. ii., p. 354.
[20] Hoppe Seyler: Zeitschrift für Physiologische Chemie, 1894, vol. xix., pp. 476–481.
[1] THE LANCET, August 13th, 1910, p. 465.

A CASE OF RHEUMATIC ARTHRITIS FOLLOWED BY STREPTOCOCCIC INVASION.

BY G. R. STRONG, M.B., B.S. LOND.,
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THE patient, aged 21 years, was admitted to Westminster Hospital under the care of Dr. William Murrell on May 4th complaining of pain in both her wrists. Two weeks before admission she had had severe sore-throat, accompanied by an attack of vomiting and shivering. On the following day she had suffered from pain in the back and the loins. Later the pain had invaded the wrists, the ankles, and the soles of the feet. She had observed also a swelling of the tarso-metatarsal joint of the left great toe.

On admission the patient was found to be a thin, rather ill-nourished girl. There were marked kyphosis and scoliosis of the dorsi-lumbar region of the spine and the chest was boat-shaped. The wrists showed chronic enlargement; both wrist-joints were swollen and tender on pressure and on active and passive movement, the left, which was more affected than the right, presenting a dome-shaped swelling over the extensor tendons. The other joints all appeared to be normal. There was no pain or tenderness of the lumbar and plantar fasciæ, and no rash of any kind was present. The heart sounds were normal, but the breath sounds were rather feeble on the left side. There was no vaginal discharge. The temperature was 101·4° F.

Diagnosis.—The case was obviously not a straightforward one. The history of an attack of tonsillitis was in favour of acute rheumatism, but against this must be set the history of

pain in the soles of the feet and lumbar fascia, the absence of cardiac signs, and the characteristic appearance of the left wrist, all of which suggested gonococcic arthritis. Some turbid fluid was aspirated from the wrist, and a swab was taken from the vagina. These were submitted to Dr. R. G. Hebb for examination, and his report was as follows: "Vaginal swab: gonococcus not found; Döderlein's bacillus present. Fluid from joint: large number of polymorphonuclear leucocytes; no organisms found in films; culture sterile." This, of course, did not give much help in arriving at a decision.

Course of illness.—Although gonococcic infection was strongly suspected, the patient was treated as a case of acute rheumatism by salicylate of sodium in 20-grain doses four-hourly. She also was given a perchloride of iron mixture to gargle and swallow. During the first five days the temperature gradually fell to 99°. The patient then complained of deafness and tinnitus, and potassium iodide was substituted for the salicylate for the next 24 hours. Upon this the temperature at once rose to 103·4°. The salicylate was resumed with the addition of an equal quantity of sodium bicarbonate. The temperature then rapidly fell, and by the morning of May 12th it was normal.

No doubt now existed that the case was one of acute rheumatism. The temperature remained normal, and the patient's condition was in every respect satisfactory. It was arranged that she should leave the hospital on May 22nd. On the morning of the 21st, however, she complained of sore-throat, and the temperature suddenly rose to 104°. The tonsils were found to be swollen and inflamed, but nothing resembling a diphtheritic membrane could be seen. There was a faint erythematous rash on the chest and the abdomen. The patient was immediately isolated on the suspicion that she might have contracted scarlet fever. A systolic murmur could now be heard at the apex. On the 22nd she was evidently in a very grave condition. The symptoms were as before, only more severe, and faint tubular breathing could be heard all over the right chest. A swab was taken from the throat and it yielded streptococci and staphylococci. The urine was found to contain casts (blood, cell, and hyaline) and much free blood and leucocytes. The leucocyte count was as follows: white blood corpuscles, 35,200; polymorphs, 94 per cent.; monomorphs (small 3, large 3), 6 per cent.

Treatment consisted in free stimulation and the administration of oxygen. On May 24th the cardiac murmur had disappeared. Death occurred on the morning of the 25th. During this time there had been no return of the arthritis.

Necropsy.—The appearances reported by Dr. Hebb were those of an intense septicæmia and pneumonia. The spinal column showed marked scoliosis from the first to the twelfth dorsal vertebræ, with the convexity to the right. The left lung lay in the concavity thus formed, with the heart and pericardium in front. Numerous adhesions bound the left lung down to this concavity and passed from it to the chest and pericardium, and the lung was by this means much compressed. The right pleural cavity contained about a pint of pus; the parietal and visceral pleuræ were coated with a thin layer of shaggy lymph, and there were numerous soft adhesions. The right lower lobe was in a state of advanced red hepatisation, showing on section a number of grey areas each about the size of a pin's head. The other lobes (both sides) were congested and œdematous. The heart was normal, the liver was toxic, and the spleen was large and soft. At the commencement of the ileum was a raised patch, ulcerated on the surface and affecting the mucosa, muscle, and peritoneum (? toxic thrombosis). There were no other lesions in the alimentary canal. Both kidneys were enlarged (7 ounces and 8 ounces respectively), engorged, and bleeding on section; the cortex was swollen and the capsule stripped easily. The trachea was congested. The hymen was intact. Death had occurred from toxæmia. The pus from the pleura contained many streptococci. Sections of the lung were examined microscopically, and showed appearances of intense inflammation, although not quite those of lobar pneumonia. The grey areas were found to be collections of pus, and to contain streptococci.

The case presents several points of interest. In the first place, was the illness of which the patient died obviously a streptococcic infection or a very severe attack of scarlet fever? The rash was not at all unlike a scarlatinal eruption. A streptococcus is frequently found in association with this disease, and, indeed, is believed by many to be the actual cause of it. If this is so, where is the line to be drawn between scarlatina and streptococcic septicæmia?

Secondly, was the fatal illness a new infection or was it merely a relapse in the course of the disease for which the patient was admitted, and which was thought to be merely a somewhat atypical example of acute rheumatism? I am inclined to the former view. The patient was obviously one of those weakly individuals who fall easy victims to any disease that comes along. On the other hand, the bacteriology of acute rheumatism and scarlet fever is very obscure, and it may be suggested that the streptococcus found in the lungs and pleura in this case might possibly be a form of the micrococcus rheumaticus of Poynton and Payne. Furthermore, scarlatina and rheumatic fever are regarded by many as being closely allied diseases.

Another point of interest is the pneumonia. This was evidently only a part of the general infection; streptococci only were found in the lung and pleural fluid, and were apparently the exciting cause of the pneumonia.

I am indebted to Dr. Murrell for permission to publish this case and to Dr. Hebb for allowing me to make use of his notes of the post-mortem examination.

Westminster Hospital.

Reviews and Notices of Books.

Die Basedow'sche Krankheit. Von Dr. Med. H. SATTLER, O.Ö. Professor der Augenheilkunde an der Universität, Leipzig. I. Teil: Symptomatologie. Leipzig: Wilhelm Engelmann. 1909. Pp. 402.

THIS volume, which treats of the symptomatology of Graves's disease, is a reprint (with slight additions) of the part contributed by Sattler to the second edition of the well-known German ophthalmological treatise, the "Graefe-Saemisch Handbuch," which has been in process of publication for now over ten years. This subject was treated by the same writer in the first edition of this work, but since its appearance in 1880 there has been such an increase in the clinical facts, such a change in the scientific theories, connected with this disease that it has been found necessary to re-write this section entirely and materially enlarge its scope. Naturally the symptoms associated with the eyes and surrounding parts are here discussed in greatest detail, but the author has rightly felt it incumbent upon himself to devote to the signs relating to the other organs of the body a consideration commensurate with our knowledge at the present day in order that the former might stand in their true perspective in the symptom-complex of this disease; and as a great number of its more or less important symptoms are to be found in the eyes and lids, together with the nerves and nerve centres connected with them, a detailed description and critical study of the symptomatology of this affection, approached from the point of view of the ophthalmologist, may not be without interest to neurologists as well as to physicians and surgeons generally. This work should be all the more welcome because of the fact that since the beginning of last century this subject has attracted the attention of many writers in this country where numerous important papers have been published. These have been duly noted in the bibliography at the end of this volume. The bibliography, which the author has with characteristic thoroughness expressly endeavoured to make as complete and as accurate as possible, is in itself a monument of much patient labour, comprising as it does nearly 3000 references which are brought up to the end of the year 1907. Throughout the book, in which the four cardinal symptoms are first treated and those connected with the nervous system and other organs of the body are subsequently considered, the author has, speaking generally, followed the plan of appending to each section, paragraph, or statement a short *résumé* or list of the cases bearing on the matter in question, as recorded in the literature or observed by himself,

by way of illustration or proof. It is impossible within the limits of any review to do justice to the thoroughness with which the discussion of the many varied symptoms is taken up, but we devote purposely to this treatise much more space than we usually allot to the consideration of a single work so that our readers may understand its great scope.

In treating of the well-known symptom of exophthalmos the writer points out that unilateral exophthalmos in Graves's disease is not such a rare phenomenon as has been supposed by some authors, the total number of such cases found in the literature amounting to 109. The degree of the exophthalmos is subject to variations which are sometimes very marked and are similar to, and may at times occur simultaneously with, those observed in the goitre and the action of the heart. Sometimes it happens that the proptosis is only at times visible, or after being present for a varying period it disappears without any alteration in the other symptoms of the disease. On investigating the influence which any impediment to the return of the blood from the orbit exerted on the degree of exophthalmos, the author found, by means of an apparatus described by Birch-Hirschfeld in another volume of this Handbuch, that (1) both in the normal and the exophthalmic eye compression of the facial veins produces distinct proptosis of the globe, but (2) while in the former this result is obtained only when the head is bent forward, it is visible in the latter even in the erect position of the head; (3) the absolute amount of proptosis after compression of these veins is much the same in both cases—mere bending forwards of the head, without compression, immediately produces in both cases proptosis which is only very slightly more marked in the exophthalmic eye than in the normal.

The murmur, which has been described by various writers as audible with a stethoscope placed over the proptosed eyes ball, has been regarded as systolic in character—i.e., as arising in the blood-vessels of the orbit. Sattler, however, has, by means of a simple auscultation-tube first devised by Hering, convinced himself that the sound so heard is really a muscle-murmur—i.e., is derived from contraction of the orbicularis palpebrarum: it has all the characters of a muscle-murmur, it is at once intensified when the lids are closed more tightly, and it ceases when on keeping the end of the auscultation-tube over the upper lid the other eye is opened slowly. This sound is therefore not peculiar to the eyes of patients suffering from Graves's disease, although the author found it very well marked in a large number of cases with moderate exophthalmos.

The increase in width of the palpebral fissure caused by the retraction of the upper lid is the most striking symptom connected with the eyelids. It is frequently, but incorrectly, associated with the name of von Stellwag, but is, as the author insists, more appropriately called after its first observer, Dalrymple's sign. Retraction of the lower lid has been recorded, but Sattler has never been able, in spite of careful examination on this point, to convince himself that any such condition analogous to that in the upper lid ever occurs. The lagging behind of the upper lid on downward movement of the eyeball (von Graefe's sign) is a phenomenon closely connected with the retraction. Both these signs are independent of the degree of exophthalmos as regards the time of their appearance or their duration, and are usually but not invariably absent. These lid symptoms constitute, in the absence of any thyroid enlargement or even cardiac disturbances, the earliest manifestations of the disease, and as such claim considerable diagnostic significance. There is much variation in their occurrence on one or both sides as considered in relation to the presence or absence of exophthalmos. With regard to the retraction of the upper lid, it may be noted that in ordinary circumstances the prominence of the eyeball is to a very limited extent influenced by the position of this lid in so far as the globe protrudes slightly on extreme elevation of the lid and sinks backwards a little as the latter is lowered, as is proved by experiments which the author quotes; and this holds good in the case of patients with marked retraction of the upper lid when asked to open their eyes widely. Pronounced retraction of the upper lid does not usually render the voluntary closure of the lids impossible provided the exophthalmos is not extreme, although apparently a certain amount of effort is required to close the lids, which during sleep not infrequently remain partially open. Lid symptoms are observed in various diseases of the nervous system, but Sattler entertains considerable scepticism about Sharkey's statements as to their frequency in healthy people, although he admits that they do so occur in rare instances. The third clinical sign associated with the eyelids is the diminished frequency and incompleteness of the involuntary winking—Stellwag's genuine sign. It is found less frequently than the other two signs, and when it does occur it is usually in conjunction with them.

The explanation of these symptoms has given rise to considerable difference of opinion. Some writers have regarded them as due to an increased tone or spasm of Müller's muscle, finding an analogy in the action of cocaine when it is instilled into the conjunctival sac, but the author adduces proof that an explanation through an irritation of the sympathetic fibres is not borne out by facts. He himself accepts that offered by Möbius—viz., that there is an increased tone of the levator palpebræ superioris, an explanation which, it may be observed, had previously been suggested in this country by Lang and Pringle, and before them indicated by Dalrymple. It is on this theory that one can best explain the retraction of the upper lid as well as Graefe's and Stellwag's signs, together with other rare phenomena such as have been recorded by Ramsay and others.

The section on the lid symptoms is followed by a consideration of the condition of the pupils and the question of pulsation in the retinal arteries. The problem as to whether the optic neuritis and atrophy that have been observed in some very rare cases of this disease, where all other possible causes could be excluded, bear any direct relation to it has been to some extent answered by the observation of one or two cases in which these complications supervened on the long-continued internal administration of preparations of thyroid gland. It is, however, remarkable that, considering the widespread use of this drug, more cases of loss of sight have not been recorded. The lack of any mention of a thyreoidin-amblyopia among the numerous experimental researches on the action of thyroid gland preparations led the author to investigate this point, and by experiments he was able to induce a real atrophy of the optic nerve.

A not infrequent symptom in the early stages of Graves's disease—it may be one of the earliest symptoms—is the lacrimation that appears apart from any possible local cause. As regards the causation of ulceration of the cornea, it is pointed out that it is impossible to explain all cases on the ground of exposure and drying of the corneal surface and its diminished sensibility. In surveying the literature on this point the author draws attention to the frequency with which both eyes are affected when ulceration occurs, and to the fact that in the great majority of cases this complication supervenes in very severe forms of Graves's disease or, in the less severe types, during a period of aggravation of the disease. From various considerations one is led to the supposition that there must be certain toxins in the circulation which lower the nutrition of the cornea and thereby reduce its power of resistance to external influences.

The discussion of the insufficiency of convergence, or Möbius's symptom as it is called, and the various sources of

error in its diagnosis is deserving of special mention. The author points out that insufficiency of convergence in Graves's disease is a much rarer phenomenon than is frequently supposed. The tremor, which is such a constant symptom, is characterised by the rapidity of the individual movements, the uniform character of their frequency and rhythm, and their relatively small amplitude. In illustration of this a tracing taken from a patient, together with two obtained from normal individuals, is reproduced. A comparison of these curves brings out the fact that both the abnormal and normal are in their essential features practically the same. In the tracings taken from the healthy persons (not at a time of over-fatigue of the muscles or mental excitement) it is found that the same number of oscillations (eight or nine per second) occurs with great regularity; their amplitude, however, is very much smaller, although it shows the same peculiar variations.

In subsequent sections the relations of chorea, epilepsy, and the various forms of paralysis, notably ophthalmoplegia and the bulbar paralyses, to this affection are dealt with. In this connexion we may note the occurrence of myasthenia pseudo-paralytica as an interesting though rare complication. Hysteria and neurasthenia are more frequent complications, but at the same time it is necessary to make a careful distinction between the nervous symptoms of Graves's disease and those strictly referable to hysteria. The changes in the mental condition of the patient, a very important and almost constant feature of the symptom-complex of this disease. It is often impossible to draw a line between this condition and the psychoses proper. These latter in their forms are described in full detail. There follow sections devoted to the various vaso-motor disturbances, the subjects of hyperidrosis and Vigouroux's sign (the diminished resistance of the skin to galvanic conduction), and the important changes observed in connexion with the digestive and respiratory systems. The various skin affections, the falling out of the hair, the pigmentary changes, and the fleeting and brawny œdema associated with the skin are next considered. Our knowledge of the last-named condition is amplified by the record and illustration of a case, together with an account of the microscopical examination, observed by the author. The complications of this disease by Dercum's disease, sclerodermia, Raynaud's disease, osteomalacia, and acromegaly are each treated in separate paragraphs; its association with, or transition into, myxœdema is also dealt with.

Of special interest are the questions of the peculiar disturbance of metabolism and the composition of the blood (relative lymphæmia), to which attention is everywhere devoted at the present time. These subjects are treated in detail and are followed by a consideration of the pyrexia (Basedow-fever) not infrequently observed in this disease and its relation to the metabolic changes. The final pages of the volume are taken up with a description of alimentary glycosuria and diabetes and their relation to this affection.

The idea of the action of some toxin in the circulation has been mentioned, and its effect on the nervous system, central and peripheral, as well as on other tissues of the body, is repeatedly emphasised throughout the book. This matter will no doubt be more fully discussed under the pathology in Part II.

Essays in Politics. By ANDREW MACPHAIL. London, New York, Bombay, and Calcutta: Longmans, Green, and Co. 1909. Pp. 301. Price 6*s.* net.

IF THE LANCET does not concern itself with party politics at home, and still less with those of a dominion whose internal affairs at first glance would seem to be of more immediate importance to herself than to the mother country, it is nevertheless pleasant to note that a volume of political essays, primarily composed by a Canadian for Canadian readers, and founded upon incidents and written round names more or less unfamiliar to the average Briton, may hold us interested, and, moreover, may leave us with a feeling that, without being lectured, we have received advice not wholly inapplicable to ourselves and to our own circumstances. And it is good to record that the advice is tendered by a medical man. Dr. Macphail deals largely with problems of politics directly affecting Canada and arising out of her position as a vast agricultural country, or dependent, at any rate, largely upon agriculture for her prosperity; and even those who do not assent to his political and financial conclusions will agree with the desire that underlies them for the preservation of those social conditions of prosperous country life the loss of which we all deplore at home, and the restoration of which we allow ourselves in sanguine moments to predict and to work for. "Our life in Canada will always be rural. Wherefore let us aspire after rural joys," he writes; and he reminds us at another page of what we owe in the mother country to "the hardy Saxon peasants" who before have "saved England in her last extremity." The inference which he suggests as to the benefit derivable by "those near the soil" from a change of financial system we neither quote nor comment upon, but leave others to do so who chose to read an eminently readable book, in which, as we have hinted, they will find views from which to dissent or with which to fortify their own opinions whatever they may be. The members of the medical profession are fairly entitled to look upon themselves as intelligent and not quite disinterested critics of politics rather than as partisans, and from that point of view will echo the wish that underlies Dr. Macphail's prediction that "possibly government by party is a worn-out thing, and when Members of Parliament get tired of the present farce they will begin to exercise their common-sense and transact the business of the country as if it were their own." It would ill become us to do more than to indicate the existence of so thorny a root of political bitterness as the nation's fiscal policy, but for the benefit of those interested in its contemplation we would mention that among the matters which Dr. Macphail handles so dexterously, and with the light touch of genial irony, may be found questions arising out of Canadian and United States tariffs, and that he discusses their relations to the prosperity of the members of such professions as that of medicine. Without wishing to recommend our readers to regard questions affecting the welfare of the country at large exclusively from the professional point of view, we see no reason why they should forget their personal interests or those which they share with a large and worthy body of their fellow citizens. That body, characterised by varying degrees of solvency, or apparent financial vulnerability, rather than by any considerable political influence, if it allows its opinions to be influenced by self-interest, may at times find its choice hovering between the lesser of two evils. On the one hand, its members may not be altogether satisfied by the result to themselves of Mr. Lloyd George's budgets; on the other, they may like to consider the views of Dr. Macphail as a critic of Canadian tariffs so far as these apply to men whose position in Canada affords a parallel to their own. We refer especially to passages in which he treats of certain aspects, political and economic, of arrangements connected with the importation of foreign goods upon "those of us who are not manufacturers but professors with salaries which have been fixed these 20 years, physicians with established fees, clerks with immovable incomes, and farmers depending upon a soil whose fertility is in no way affected by political device," and to such comments as he applies in another chapter to the

contributions to the revenue, as in fact they are, of "professors, physicians, ministers, and clerks." Dr. Macphail, who must certainly commend himself even to those who do not see eye to eye with him as an essayist by a charm of style and breezy frankness peculiarly his own, is the editor of the Journal of the Canadian Medical Association.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's, and Christ's Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Sixth edition, revised and enlarged. With 361 illustrations and 65 plates in monotint. London: Henry Kimpton; Glasgow: Alexander Stenhouse. 1910. Pp. 876. Price 25*s.* net.

Dr. Stimson is well known in this country, and all that comes from his pen is justly held in high repute. This is the sixth edition of his treatise and it is welcome. Investigations stimulated and aided by X ray examinations have revealed conditions of injury occurring in the small bones of the carpus and tarsus which have not hitherto been systematically described and considered. The additions to the edition under review represent the result of study of these injuries and include a new subhead, the midcarpal fracture-dislocation. Dr. Stimson is inclined to think that the knowledge now gained covers all the typical lesions. He has added sections on fractures of the floor of the acetabulum and of the internal epicondyle of the femur and on backward dislocation of the lower jaw. There are also important additions relating to treatment. With regard to midcarpal fracture-dislocation, this is an injury of which the typical features are fracture of the scaphoid, dislocation forwards of the semilunar and proximal fragment of the scaphoid, and more or less derangement of the relations of the os magnum with the adjoining bones. The injury, Dr. Stimson states, is not rare. It occurs almost exclusively in males, and "if the displacement is uncorrected the patient remains long disabled. As time passes the pain and sensitiveness may diminish and disappear and the hand regain a considerable measure of usefulness, but the motions of the wrist will be much restricted and the strength of the grip lessened. ..... When a chronic arthritis ensues, all motion at the wrist may be lost."

A very careful and accurate bibliography occurs in a convenient and useful form as footnotes, but these are not collected together as a bibliographical index, an omission which we consider might with advantage be supplied in future editions. It is no light task to deal with the mass of material which forms the basis of a work like this, to select only typical examples and accurate descriptions, and to produce a treatise which is not only complete and scientific, but also readable and even entertaining.

A very complete account is given of dislocations of the vertebræ considered under the separate headings of dislocations of the occiput from the atlas, of the atlas from the axis, of the lower six cervical vertebræ (the commonest of these rare injuries), of the dorsal vertebræ, and of the lumbar vertebræ. Discussion concerning the proper treatment of fractures in the vicinity of the elbow-joint turns mainly upon the position to be given to the limb, some favouring the extended position and others recommending flexion. The author takes a broad view of the question, and concludes from the facts investigated that a fear of separation of the fragments or of ankylosis of the joint should not establish a rule of practice to be followed in all cases.

The book cannot be recommended as a text-book for students—it is far too advanced for that—but it will appeal to a smaller circle of readers who desire to know thoroughly the results of a careful study of reported cases and the groundwork of the principles which underlie the scientific treatment of fractures and dislocations.

New Inventions.

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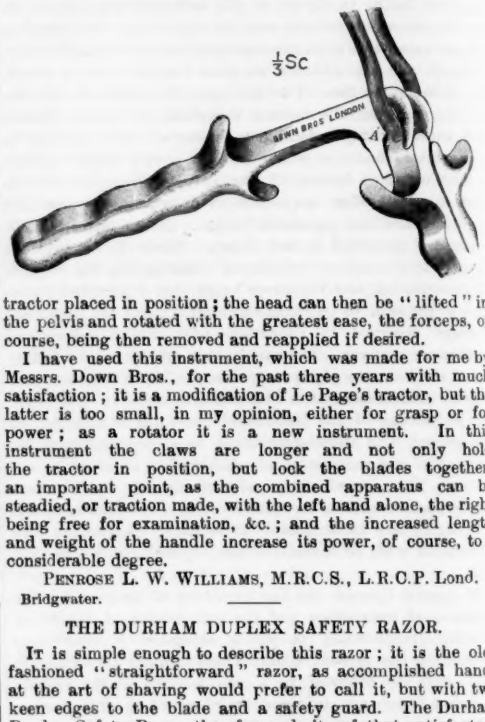
THE application of this tractor is simple, being always free of the maternal soft parts. The forceps and tractor form one rigid apparatus and become a lever. Either the point A or the end of the handle of the forceps may be made the fulcrum at will. On the principle of the parallelogram of forces, a force in the same direction can be applied by either hand alternately or both together, the direction and plane of the resultant being determined by the proportionate amount of force used by either hand, and thus affording most welcome relief to the operator's muscles. For converting occipito-posterior presentations the forceps should be applied and the



tractor placed in position; the head can then be "lifted" in the pelvis and rotated with the greatest ease, the forceps, of course, being then removed and reapplied if desired.

I have used this instrument, which was made for me by Messrs. Down Bros., for the past three years with much satisfaction; it is a modification of Le Page's tractor, but the latter is too small, in my opinion, either for grasp or for power; as a rotator it is a new instrument. In this instrument the claws are longer and not only hold the tractor in position, but lock the blades together, an important point, as the combined apparatus can be steadied, or traction made, with the left hand alone, the right being free for examination, &c.; and the increased length and weight of the handle increase its power, of course, to a considerable degree.

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Bridgwater.

THE DURHAM DUPLEX SAFETY RAZOR.

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contributions to the revenue, as in fact they are, of "professors, physicians, ministers, and clerks." Dr. Macphail, who must certainly commend himself even to those who do not see eye to eye with him as an essayist by a charm of style and breezy frankness peculiarly his own, is the editor of the Journal of the Canadian Medical Association.

A Practical Treatise on Fractures and Dislocations. By LEWIS A. STIMSON, B.A., M.D., LL.D., Professor of Surgery in Cornell University Medical College, New York; Surgeon to the New York and Hudson Street Hospitals; Consulting Surgeon to Bellevue, St. John's, and Christ's Hospitals; Corresponding Member of the Société de Chirurgie of Paris. Sixth edition, revised and enlarged. With 361 illustrations and 65 plates in monotint. London: Henry Kimpton; Glasgow: Alexander Stenhouse. 1910. Pp. 876. Price 25*s.* net.

Dr. Stimson is well known in this country, and all that comes from his pen is justly held in high repute. This is the sixth edition of his treatise and it is welcome. Investigations stimulated and aided by X ray examinations have revealed conditions of injury occurring in the small bones of the carpus and tarsus which have not hitherto been systematically described and considered. The additions to the edition under review represent the result of study of these injuries and include a new subhead, the midcarpal fracture-dislocation. Dr. Stimson is inclined to think that the knowledge now gained covers all the typical lesions. He has added sections on fractures of the floor of the acetabulum and of the internal epicondyle of the femur and on backward dislocation of the lower jaw. There are also important additions relating to treatment. With regard to midcarpal fracture-dislocation, this is an injury of which the typical features are fracture of the scaphoid, dislocation forwards of the semilunar and proximal fragment of the scaphoid, and more or less derangement of the relations of the os magnum with the adjoining bones. The injury, Dr. Stimson states, is not rare. It occurs almost exclusively in males, and "if the displacement is uncorrected the patient remains long disabled. As time passes the pain and sensitiveness may diminish and disappear and the hand regain a considerable measure of usefulness, but the motions of the wrist will be much restricted and the strength of the grip lessened. ..... When a chronic arthritis ensues, all motion at the wrist may be lost."

A very careful and accurate bibliography occurs in a convenient and useful form as footnotes, but these are not collected together as a bibliographical index, an omission which we consider might with advantage be supplied in future editions. It is no light task to deal with the mass of material which forms the basis of a work like this, to select only typical examples and accurate descriptions, and to produce a treatise which is not only complete and scientific, but also readable and even entertaining.

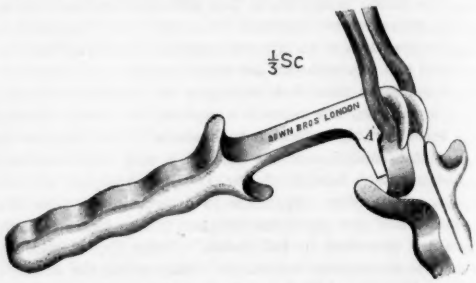
A very complete account is given of dislocations of the vertebræ considered under the separate headings of dislocations of the occiput from the atlas, of the atlas from the axis, of the lower six cervical vertebræ (the commonest of these rare injuries), of the dorsal vertebræ, and of the lumbar vertebræ. Discussion concerning the proper treatment of fractures in the vicinity of the elbow-joint turns mainly upon the position to be given to the limb, some favouring the extended position and others recommending flexion. The author takes a broad view of the question, and concludes from the facts investigated that a fear of separation of the fragments or of ankylosis of the joint should not establish a rule of practice to be followed in all cases.

The book cannot be recommended as a text-book for students—it is far too advanced for that—but it will appeal to a smaller circle of readers who desire to know thoroughly the results of a careful study of reported cases and the groundwork of the principles which underlie the scientific treatment of fractures and dislocations.

New Inventions.

A NEW TRACTOR FOR USE WITH MIDWIFERY FORCEPS.

THE application of this tractor is simple, being always free of the maternal soft parts. The forceps and tractor form one rigid apparatus and become a lever. Either the point A or the end of the handle of the forceps may be made the fulcrum at will. On the principle of the parallelogram of forces, a force in the same direction can be applied by either hand alternately or both together, the direction and plane of the resultant being determined by the proportionate amount of force used by either hand, and thus affording most welcome relief to the operator's muscles. For converting occipito-posterior presentations the forceps should be applied and the



tractor placed in position; the head can then be "lifted" in the pelvis and rotated with the greatest ease, the forceps, of course, being then removed and reapplied if desired.

I have used this instrument, which was made for me by Messrs. Down Bros., for the past three years with much satisfaction; it is a modification of Le Page's tractor, but the latter is too small, in my opinion, either for grasp or for power; as a rotator it is a new instrument. In this instrument the claws are longer and not only hold the tractor in position, but lock the blades together, an important point, as the combined apparatus can be steadied, or traction made, with the left hand alone, the right being free for examination, &c.; and the increased length and weight of the handle increase its power, of course, to a considerable degree.

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major and minor. An aneurysm, the distended superior vena cava, and the right lung were all found to be adherent together. The aneurysm originated from the right and posterior region of the first part of the arch of the aorta, and was of the size of a Tangerine orange. The opening of the superior vena cava into the right auricle was small and constricted. There was also a communication between it and the aneurysm which would admit a No. 8 catheter. The symptoms in this case were similar to those of other recorded cases. They were usually the sudden onset of suffocation, followed later by swelling of the neck and right arm and by characteristic venous collateral circulation. The prognosis was very unfavourable, but, as already mentioned, in his own case the patient lived for nearly 18 months.

Dr. LAURENCE HUMPHREY and Dr. W. E. DIXON (Cambridge) communicated a paper on

A Case of Acromegaly with Hypertrophied Heart: Pressor Substances in the Urine.

The patient was a man, aged 39 years, in whom the changes characteristic of acromegaly had gradually developed in the course of ten years. He gave clinical evidence of enlargement of the heart and suffered from attacks of shortness of breath of cardiac nature. His urine was usually acid, of specific gravity 1018, and the quantity about 3 pints daily. There was no albumin or sugar. The urine was examined experimentally by Dr. Dixon for substances with a pituitary-like action. 10 c.c. injected into the jugular vein of an animal caused a rapid rise of blood pressure of as much as 70 or 80 mm. of mercury, and lasting for about 2½ minutes. It was usually preceded by a slight fall like that obtained with normal urine, which was due to the potash salts it contained. On subsequent injection another rise occurred, but was less in degree than the original one. This pressor substance was found in all the samples examined; it was not destroyed by keeping the urine and was unaffected by boiling. The evidence obtained as to its nature pointed to its not being a pituitary extract. A second case of early acromegaly in a young woman showed the presence of a similar pressor substance, but less marked. At a necropsy made 40 hours after death the heart was found to weigh 2 pounds 13 ounces; the thyroid was normal; the pituitary body was greatly enlarged, weighing 8·6 grammes instead of half a gramme. On section it was soft and diffluent. Extracts of the anterior and posterior parts of the pituitary gave no pressor effect, although an effect was obtained from extracts of other organs. It seemed probable that the hypertrophy of the heart was a result of the action of this pressor substance.

Professor C. BÄUMLER (Freiburg) referred to the interest of these observations and discussed the possibilities in regard to the origin of this pressor substance.

Dr. DIXON, in reply, referred to the pressor substance in normal urine as present in mere traces, whereas in this case the pressor effect was obtainable with a very few cubic centimetres of the urine. He believed that this substance was the cause of the hypertrophy of the heart, and suggested the possibility that the pituitary changes in acromegaly might be themselves secondary to some other changes as yet unrecognised.

Dr. J. GUELPA (Paris) read a paper on

The Prophylaxis and Treatment of Diseases: Cure of Diabetes.

He gave a brief account of the general principles upon which he had based his method of treatment, to which he had applied the name of dis-intoxication. He maintained that emaciation enabled the body to remove toxins more rapidly; that weakness was not a manifestation of deficient nutrition, but was a result of imperfect removal of toxins; and that hunger was not an expression of the needs of the body for repair of waste, but was a measure of the degree of intoxication in the digestive system. He proceeded to affirm that there was absolutely no danger in remaining deprived of food for several weeks provided care be taken to relieve the digestive tract of waste products and poisons which were daily formed there. When death occurred after only several days or weeks of starvation, it was not brought about, as some thought, by the fact that the waste of the body had not been replaced, but it was the result of the excess of toxins which had accumulated and had not been excreted. Purgation, when it was thorough and not drastic, was never a cause of dangerous inflammation of the digestive tract, even if repeated during several days in succession. It had, on the contrary, the advantage of securing disinfection of the digestive tract when that function was performed imperfectly, or not at all, by the food. Purgation and deprivation of food, when their duration was not too prolonged, did not cause anæmia, but, on the other hand, they were the best means of increasing the red corpuscles, the hæmoglobin, and the leucocytes in their most vital form—the mononuclears. The general principle of his method was to ensure the most regular and rapid elimination possible of the waste products and poisons of the body by means of privation of food and purgation at repeated intervals during three, four, or even more days. He stated that this method of treatment was never harmful, that it was nearly always useful, and that it sometimes gave truly marvellous results. He claimed that it would bring about the cure of diabetes, even when accompanied by the most serious complications. Similar good results were described as occurring in gout, and the method was claimed as bringing about the disappearance of tophi if applied with sufficient rigour and persistence. The method was described as being of great value in the preservation of health and in combating distraction, somnolence, and cerebral lassitude.

The PRESIDENT described some results he had obtained by means of Dr. Guelpa's method, more particularly in diabetes.

Miss ETTIE SAYER, M.B. Lond. (London), read a paper on

The Effects of Electrical Currents upon Blood Pressure.

She discussed in some detail the physiology of blood pressure and of its alterations, and the mechanism of increased blood pressure in disease. The effects were then described of high frequency currents upon various morbid conditions associated with increased blood pressure, including auto-intoxication, chronic Bright's disease, gout, eczema, lumbago, sciatica, acute urticaria, kraurosis vulvæ, climacteric flooding, and neurotic states. Charts and blood pressure records were given in support of the statements made. In regard to the method of application of the high-frequency treatment, difficulties were formerly encountered owing to the trouble of measuring accurately the dose given, but the newer methods adopted permitted this to be done. The matter was of importance, because a rise instead of a fall was likely to occur if too long or too strong a dose were given. The manner of action of the currents was believed to be thermal in nature, and the effect was exerted through the vasomotor mechanism.

Dr. S. SLOAN (Glasgow) and Dr. J. HADDON (Hawick) discussed the paper.

Dr. A. C. JORDAN (London) read a paper on

The Roentgen Ray Appearances of Thoracic Aneurysm.

He showed a large number of lantern slides demonstrating the value of Roentgen ray photographs in the diagnosis of thoracic aneurysm, and emphasised the importance of obtaining a right anterior oblique view. This afforded a view in the plane of the aorta, which, it should be remembered, passed from right to left and from before backwards. The patient was placed in a revolving seat, which facilitated the examination. Some evidence was also brought forward to indicate the possibility of recognising atheroma of the aorta by means of the Roentgen rays. The calcareous plaques did not as a rule show, but a peculiar form of heart outline was suggestive of atheroma.

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The Evolution of Racial Types of Europe and its Bearing on the Racial Factor in Disease.

He traced the evolution of the races of Europe since the estimated end of the Great Ice Age some 40,000 years ago.

The ape-like Neanderthal type of man disappeared, being replaced by the long-headed races of Southern, Western, and Northern Europe. At the present time European dolichocephalics approximated to one of two types—the Iberian, small, slender, leptorrhine, and brunette; and the Teuton, tall, muscular, leptorrhine, and blonde. The separation of Iberian from Teuton, which was probably originally the result of climatic conditions, was favoured by the appearance of the Alpine race, characterised by being short, thick-set, snub-nosed, and brunette. It would therefore appear that in Europe there are three radical racial types whose evolution took place under radically different climatic conditions. Their social conditions were also different. The Alpines dwelt in communities, first as cave-dwellers, later in lake dwellings. The Iberians were also troglodytes and pit-dwellers. The Teutons were, on the other hand, mainly hunters and dwellers in the open. In this country the Iberian was the aboriginal of the post-glacial era. Following him came the Alpine and a tall sub-brachycephalic type, the later and historical invasions being mostly Teuton. Dr. Mackintosh quoted Dr. F. C. Shrubsall to the effect that the blonde types in this country are especially liable to tonsillitis, rheumatism, heart disease, and osteo-arthritis. The special liabilities of brunettes are towards pulmonary tuberculosis, nervous diseases, and malignant growths. Dr. Mackintosh then proceeded to explain the climatic treatment of disease on the principle of racial evolution. He regarded the "open-air" treatment of pulmonary tuberculosis as an empirical attempt to restore the patient to his natural racial environment, and he endeavoured to explain the successes and failures of this method of treatment on racial lines. He also believed that by studying the racial characteristics of patients it was possible to afford valuable information in regard to the choice of locality for school, home, holiday, and health resort.

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Tuberculin in the Treatment of Pulmonary Phthisis.

He criticised the statistics from English sanatoriums and strongly urged the use of tuberculin for purposes of diagnosis and treatment. He maintained that tuberculin gave better results than sanatorium methods at less cost and without any selection of the cases. Tuberculin succeeded in completely arresting the disease even while the patient kept at work. In cases of mixed infection it was advisable to deal with the secondary infection first. He gave tuberculin in large doses, and he stated that the negative phase described by Sir Almroth E. Wright might be disregarded with impunity.

Professor H. SAHLI (Berne) was satisfied that in early cases treatment by means of tuberculin was of great importance, and he described it as the greatest advance made in this direction during the last 20 years. He also mentioned its value in early renal tuberculosis, in tuberculous spondylitis, and also in some cases of Addison's disease.

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Dr. HAMILTON, Dr. J. F. HALLS DALLY (London), and Dr. HADDON briefly commented on the paper.

The PRESIDENT deprecated any attempt to put sanatorium treatment and tuberculin treatment into opposition or antithesis. He believed both methods to be of value, but he uttered a warning against the universal use of tuberculin.

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Resolutions of thanks to the President and to the secretaries were passed and the meeting then terminated.

SURGERY.

FRIDAY, JULY 29TH.

President, Sir VICTOR HORSLEY (London).

Safety Trephine and Skull Saw.

Dr. MARTEL demonstrated a form of Safety Trephine. It acted on the principle that rotation ceased as soon as the resistance of the skull was overcome. This was effected by a spring clutch which was released as soon as the pressure was withdrawn, and all risk of a wound to the dura mater was thus prevented. The instrument was shown in action on a dry skull, and within the hollow of the skull was placed a toy balloon. The trephine, which was driven by electricity, quickly perforated the bone, but did no damage to the underlying balloon. Dr. Martel also demonstrated a skull saw which was capable of cutting the bone rapidly and with apparently perfect safety to the dura mater. Both instruments are very ingenious and deserve a trial.

Mr. FREDERICK D. BIRD (Melbourne) read a paper on

Conditions Simulating Cancer of the Stomach.

He urged that it was very difficult indeed to decide with certainty, both before and during operation, between cancer of the stomach and many other conditions, such as chronic ulcer. It was especially difficult if the opening through the abdominal wall was small, such as was generally made in an exploratory incision. It was only when a portion of the growth was examined microscopically that a correct decision could be arrived at. The chief object of his paper was to point out how very frequently gumma of the stomach (or syphiloma, as he preferred to call it) had been removed in mistake for carcinoma. In all probability syphilis was not a rare cause of the swelling of the pylorus. He described in detail a case where he was able to make the diagnosis on inspection. One point of importance was that in syphiloma there was an absence of extension of the disease along the lesser curvature. He considered it best in all doubtful cases to remove a portion at the first operation. As to the diagnosis of this condition, he believed the previous history to be useless. When the abdomen was opened the presence of whitish blotches on the spleen and liver, and scars and adhesions in the great omentum were very suggestive of the presence of a syphiloma. A syphiloma when new looked much more succulent than did a carcinoma, but when it was old the naked-eye appearances were very similar. Carcinoma tended to extend along the lesser curvature, but this was not seen in syphiloma. In any swelling of the stomach the Wassermann reaction should always be employed.

Mr. H. J. PATERSON (London) read a paper on the

Early Diagnosis and Treatment of Gastric Cancer.

Cancer of the stomach was a very frequent and fatal disease. During the seven years 1901 to 1907, out of a total of 207,764 deaths from cancer, no fewer than 35,664 were due to cancer of the stomach. In England and Wales more than 5000 persons, on an average, died from this disease every year. Though cancer of the stomach was more common than cancer of any other organ of the body, yet gastrectomy, partial or complete, was one of the rarer operations in surgery. This was not as it should be, for gastric cancer in its early stage was markedly a local disease, and could be removed with favourable results both immediate and remote. The early symptoms of cancer of the stomach were loss of appetite, failure of strength, and anæmia. Progressive loss of strength was an early symptom. A palpable tumour was not an early sign of cancer. Their aim should be to establish a diagnosis or at least the necessity for surgical treatment before a tumour could be felt; nevertheless, a palpable tumour did not contra-indicate the possibility of a complete removal. He believed that an examination of the gastric contents when interpreted in connexion with the clinical history might be of the greatest help in assisting a surgeon to come to a conclusion as to the need for surgical treatment. One of the earliest signs of cancer of the stomach was the impairment of its motility, and this was best tested for by giving the patient over night 12 ounces of milk, and then, ten hours later, passing a stomach tube. If food was found present, then it indicated impaired motility, and persistent impairment of gastric motility was a condition requiring surgical intervention. The absence of free hydrochloric acid was not of much value in the diagnosis of

major and minor. An aneurysm, the distended superior vena cava, and the right lung were all found to be adherent together. The aneurysm originated from the right and posterior region of the first part of the arch of the aorta, and was of the size of a Tangerine orange. The opening of the superior vena cava into the right auricle was small and constricted. There was also a communication between it and the aneurysm which would admit a No. 8 catheter. The symptoms in this case were similar to those of other recorded cases. They were usually the sudden onset of suffocation, followed later by swelling of the neck and right arm and by characteristic venous collateral circulation. The prognosis was very unfavourable, but, as already mentioned, in his own case the patient lived for nearly 18 months.

Dr. LAURENCE HUMPHREY and Dr. W. E. DIXON (Cambridge) communicated a paper on

A Case of Acromegaly with Hypertrophied Heart: Pressor Substances in the Urine.

The patient was a man, aged 39 years, in whom the changes characteristic of acromegaly had gradually developed in the course of ten years. He gave clinical evidence of enlargement of the heart and suffered from attacks of shortness of breath of cardiac nature. His urine was usually acid, of specific gravity 1018, and the quantity about 3 pints daily. There was no albumin or sugar. The urine was examined experimentally by Dr. Dixon for substances with a pituitary-like action. 10 c.c. injected into the jugular vein of an animal caused a rapid rise of blood pressure of as much as 70 or 80 mm. of mercury, and lasting for about 2½ minutes. It was usually preceded by a slight fall like that obtained with normal urine, which was due to the potash salts it contained. On subsequent injection another rise occurred, but was less in degree than the original one. This pressor substance was found in all the samples examined; it was not destroyed by keeping the urine and was unaffected by boiling. The evidence obtained as to its nature pointed to its not being a pituitary extract. A second case of early acromegaly in a young woman showed the presence of a similar pressor substance, but less marked. At a necropsy made 40 hours after death the heart was found to weigh 2 pounds 13 ounces; the thyroid was normal; the pituitary body was greatly enlarged, weighing 8·6 grammes instead of half a gramme. On section it was soft and diffluent. Extracts of the anterior and posterior parts of the pituitary gave no pressor effect, although an effect was obtained from extracts of other organs. It seemed probable that the hypertrophy of the heart was a result of the action of this pressor substance.

Professor C. BÄUMLER (Freiburg) referred to the interest of these observations and discussed the possibilities in regard to the origin of this pressor substance.

Dr. DIXON, in reply, referred to the pressor substance in normal urine as present in mere traces, whereas in this case the pressor effect was obtainable with a very few cubic centimetres of the urine. He believed that this substance was the cause of the hypertrophy of the heart, and suggested the possibility that the pituitary changes in acromegaly might be themselves secondary to some other changes as yet unrecognised.

Dr. J. GUELPA (Paris) read a paper on

The Prophylaxis and Treatment of Diseases: Cure of Diabetes.

He gave a brief account of the general principles upon which he had based his method of treatment, to which he had applied the name of dis-intoxication. He maintained that emaciation enabled the body to remove toxins more rapidly; that weakness was not a manifestation of deficient nutrition, but was a result of imperfect removal of toxins; and that hunger was not an expression of the needs of the body for repair of waste, but was a measure of the degree of intoxication in the digestive system. He proceeded to affirm that there was absolutely no danger in remaining deprived of food for several weeks provided care be taken to relieve the digestive tract of waste products and poisons which were daily formed there. When death occurred after only several days or weeks of starvation, it was not brought about, as some thought, by the fact that the waste of the body had not been replaced, but it was the result of the excess of toxins which had accumulated and had not been excreted. Purgation, when it was thorough and not drastic, was never a cause of dangerous inflammation of the digestive tract, even if repeated during several days in succession. It had, on the contrary, the advantage of securing disinfection of the digestive tract when that function was performed imperfectly, or not at all, by the food. Purgation and deprivation of food, when their duration was not too prolonged, did not cause anæmia, but, on the other hand, they were the best means of increasing the red corpuscles, the hæmoglobin, and the leucocytes in their most vital form—the mononuclears. The general principle of his method was to ensure the most regular and rapid elimination possible of the waste products and poisons of the body by means of privation of food and purgation at repeated intervals during three, four, or even more days. He stated that this method of treatment was never harmful, that it was nearly always useful, and that it sometimes gave truly marvellous results. He claimed that it would bring about the cure of diabetes, even when accompanied by the most serious complications. Similar good results were described as occurring in gout, and the method was claimed as bringing about the disappearance of tophi if applied with sufficient rigour and persistence. The method was described as being of great value in the preservation of health and in combating distraction, somnolence, and cerebral lassitude.

The PRESIDENT described some results he had obtained by means of Dr. Guelpa's method, more particularly in diabetes.

Miss ETTIE SAYER, M.B. Lond. (London), read a paper on

The Effects of Electrical Currents upon Blood Pressure.

She discussed in some detail the physiology of blood pressure and of its alterations, and the mechanism of increased blood pressure in disease. The effects were then described of high frequency currents upon various morbid conditions associated with increased blood pressure, including auto-intoxication, chronic Bright's disease, gout, eczema, lumbago, sciatica, acute urticaria, kraurosis vulvæ, climacteric flooding, and neurotic states. Charts and blood pressure records were given in support of the statements made. In regard to the method of application of the high-frequency treatment, difficulties were formerly encountered owing to the trouble of measuring accurately the dose given, but the newer methods adopted permitted this to be done. The matter was of importance, because a rise instead of a fall was likely to occur if too long or too strong a dose were given. The manner of action of the currents was believed to be thermal in nature, and the effect was exerted through the vaso-motor mechanism.

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gastric cancer. Of much greater value was the diminution of the protein hydrochloric acid, and this he considered a very early symptom of gastric cancer, though it might be found in chronic gastritis due to other causes. It was often the case that a patient when received into a hospital improved under dieting and rest, even though previous to admission a diagnosis of gastric cancer had been made. This improvement occurred only in early cases—in fact, the very cases which would be most benefited by operation. It was not necessary to make a definite diagnosis in every case: all they need do was to ascertain that a condition was present which required surgical treatment. The really reckless surgeon was not he who explored after carefully considering the clinical history and results of gastric analysis, but he who adopted the policy of "wait and see" until the possibility of performing a radical operation was gone for ever. Although the gastroscope was a very ingenious instrument it would probably not be of much value in the diagnosis of gastric cancer. As to the method of operation, the wider the excision the better the ultimate results. In his opinion it was advisable, in order to guard against recurrence, to remove the transverse colon as well. Progress in the treatment of gastric cancer would be made, not so much by increasing the extent of our operative measures, but by early operation. As to the results, in about 12 per cent. of the cases operated upon there was a probability of permanent cure.

Professor ALEXIS THOMSON (Edinburgh) read a paper on the

Pathological Anatomy of Cancer of the Stomach and the Conditions which are Mistaken for it.

In many cases a cancer of the stomach was suspected and yet microscopic examination showed that it was not carcinomatous in origin. In 49 resections of the stomach for cancer, microscopic examination showed that in only 35 was the lesion of a cancerous nature. This diagnosis was much more readily made when large sections were examined microscopically. Twenty-three specimens from the museum of the University of Edinburgh which were catalogued as cancer, when examined microscopically proved to be cancerous in only 17 instances. If they took these cases together, of 72 stomachs believed to be cancerous no less than 20—that is, 27·7 per cent.—were found to be non-malignant. Of these, 1 was tuberculous and the 19 other cases were instances of diffuse fibromatosis of the submucous coat. This fibromatosis might be syphilitic or tuberculous in origin, but in most cases it was due to ulcer of the stomach. This fibromatosis had much tendency to be diffused widely throughout the stomach, and to invade adjacent organs, as the colon or the pancreas. The "leather bottle" stomach was a typical example of the fibromatosis, though it was described in nearly all the books as carcinomatous in nature. It was probable that this fibromatosis was septic in origin, the sepsis invading the stomach at the site of an ulcer. It was possible that malignant disease might develop on a basis of fibromatosis. The diagnosis was often very difficult. All the cardinal signs might be present, and yet the condition might not be cancerous. The error was always in one direction—that was to say, a non-malignant mass was believed to be cancerous. In a doubtful case it was advisable to open the stomach away from the mass so that its inner surface might be examined.

Mr. E. DEANESLY (Wolverhampton) read a paper on the

Excision of Gastric Ulcers.

The almost universal adoption of gastro-enterostomy as the operation of choice in the surgical treatment of simple ulceration of the stomach and duodenum was not based on sound principles and was not justified by results. It was now known that unless there was distinct pyloric obstruction food did not pass through the new opening, and even after the operation had been done an ulcer might perforate or a new peptic ulcer might form. There was great liability to recurrence both of the pain and other symptoms. Excision should be the operation of choice in all centrally situated ulcers not involving the pylorus or the duodenum. Excision was easy, unless the ulcer was near the cardiac orifice. Even a large ulcer could be excised; in one case he had excised an ulcer 2½ inches wide, and the stomach cavity was reduced by one-fourth. Excision was also the best method of treatment of perforated ulcers.

The PRESIDENT then put the resolution which had been suggested on Wednesday. It was moved by Mr. PATERSON and seconded by Mr. DOUGLAS DREW:

That the Section of Surgery recommends the Council of the British Medical Association to appoint a committee to inquire into and report on the results obtained in the treatment of simple fractures both with and without operation.

Mr. W. ERNEST MILES (London) read a paper on the

Radical Abdomino-perineal Operation for Cancer of the Rectum and of the Pelvic Colon,

with a table showing results of 24 cases in which the method had been employed. He pointed out that in the majority of cases of cancer of the rectum which were treated by excision recurrence followed, especially those which were treated by the perineal route, and in this class he included Kraske's operation. He had investigated the direction of the spread of rectal cancer, and his results as to this point were based on inoperable cases, on post-mortem examinations, on evidence of the spread of the disease as seen during operation, and also on the localities liable to recurrence. There were three main routes—downwards, laterally, and upwards—and the tissues in these three regions were liable to be affected whatever the site or size of the growth. The wider the operation, the longer period elapsed before recurrence. Up to 1906 he had performed 59 perineal excisions with one death, but of the other 58 cases 54 suffered from recurrence. He had now given up entirely the perineal route, and he had adopted the abdomino-perineal route. It was useless to think of attempting to bring the bowel down from above so that the patient might have a perineal anus: an abdominal anus was unavoidable. The radical operation that he practised was somewhat formidable. For at least a week before the operation the rectum and as much as possible of the large intestine were cleared out by lavage, and salol was given by the mouth for the purpose of diminishing the septic nature of the bowel contents. Should the site of the growth prevent this intestinal lavage, he performed cæcostomy two or three weeks before. He then proceeded to describe the details of the operation he preferred. As to the results, he had performed this operation on 26 cases, and of these 10 had died as the result of the operation. Up to the present 5 cases had survived more than three years without any recurrence. The other cases were too recent to be of any value so far.

Mr. C. J. BOND (Leicester) read a paper on

A Method of Establishing Colotomy Openings and Ureteral Permanent Fistulæ by Means of Elevated and More Readily Controlled Mucous Openings.

Colostomies and ureteral fistulæ caused great disability and discomfort, for it was very difficult to control the outflow. In ureteral fistulæ, in addition to the discomfort, there was great risk of urinary sepsis. He described the first case on which he operated. The patient was a girl with extroversion of the bladder. He brought the ureters out into the loins, allowing them to project for one and a half inches. A strip of skin was raised and wrapped round the projecting ureter, so that the ureter opened on the summit of the projection. A suitable instrument was easily adapted to the teat-like prominence to receive the urine. Another operation was performed to close in the bladder wall. The results were exceedingly satisfactory. Before the operation the urine was very septic, but it began to improve, and before long it was almost free from micro-organisms. The child was able to attend school. In the case of the bowel, the larger size of the organ required much more skin to cover it, and it was found that the best results were obtained by making an angled skin flap on each side of the colostomy opening. Good results had followed, and it was much easier to fit an apparatus on to this projection. He believed that in this case he was following out the principle which was accepted in amputations, that the stump should be well covered with skin and adapted for application of a useful instrument.

Dr. C. MACLAURIN (Sydney) read a paper on the

Clinical Manifestations, Diagnosis, and Treatment of Liver Hydatids.

He had had an experience of 140 cases of hydatid of the liver, and most of these had been operated on by himself. Toxæmia might occur on opening a cyst, even if the cyst was normal at the operation. In old cysts, especially in women, very marked neurotic phenomena might be present. As to the amount of pain, it was interesting to note that 60 per cent. of the adults suffered from marked pain, but

pain was a rare symptom in children. In some cases a tumour as large as a fœtal head might be present and yet the patient might not know of its existence. The hydatid thrill occurred only in 5 or 6 per cent. of the cases, and it was not diagnostic. If vomiting was present it always signalised some severe complication. The hydatid rash often came out after operation or when leakage occurred. Suppuration occurred in 14 per cent. of the cases, often after some small injury or operation. Rupture was most serious, and was practically always ultimately fatal. It might kill by septic peritonitis or by the peritoneal inoculation of hydatid growths. Rupture might occur from slight causes such as a mere muscular action, and it was most common in children and young people. When oozing occurred the fluid was surrounded by a large false capsule, lying in front of the intestines. In the diagnosis all tests were fallacious, but the X rays almost always gave some evidence of the existence of a cyst, and this was the most trustworthy test. The best treatment was by marsupialisation, and it was best to operate between the ribs unless the cyst was on the anterior border of the liver. When the cyst was exposed it was well to inject a little formalin.

Dr. R. KENNEDY (Glasgow) read a paper on

A Case of Suture of the Circumflex Nerve.

The patient was a man, aged 25 years, and he had been kicked on the shoulder when asleep. When examined he had paralysis of the deltoid. He was treated with electricity for eight months before Dr. Kennedy saw him. There were then three defects; the arm could be abducted only to the extent of 30 degrees, the roundness of the shoulder had gone, and the deltoid gave no response to either faradism or galvanism. The lower angle of the scapula projected and over the greater part of the circumflex area there was loss of cutaneous sensation. At the operation the posterior thoracic nerve was normal. The circumflex nerve had a thickening on it about an inch before it left the axilla, both the proximal and the distal end showed a bulbous enlargement; these were united by fibrous tissue, but there was no nerve continuity. The bulbs were excised and the two ends united with a catgut stitch. In six months the patient could raise the arm above the shoulder, and in 18 months he had completely recovered. Dr. Kennedy suggested that the reason why nervous union had not occurred, although the parts were in contact, was that the severe trauma had damaged the nerve endings greatly, and that the nerve fibres had not recovered from the trauma until it was too late for union to occur.

Mr. J. P. LOCKHART MUMMERY (London) read a paper on

The Surgical Treatment of Colitis.

From a surgical point of view colitis might be divided into chronic mucous colitis and ulcerative colitis. Chronic mucous colitis was never fatal, but ulcerative colitis was very dangerous, and under medical treatment it had a mortality of nearly 60 per cent. It was essential before attempting to treat mucous colitis by operation that the surgeon should verify the diagnosis by sigmoidoscopy, as only about 30 per cent. of the cases showed any sign of colitis. Only a small percentage of cases of true chronic mucous colitis required surgical treatment, and for these he believed that appendicostomy was the best operation. Ulcerative colitis called for immediate surgical treatment, and there was great danger in delay. Appendicostomy, which was the operation of choice, should be performed in all cases of ulcerative colitis as soon as the diagnosis was made. Through this opening it was possible to make applications directly to the ulcerated surface, and the evidence at present available led them to believe that a great reduction in the mortality from this disease would result from this method of treatment.

A general discussion then took place on several of the papers which had been read.

ANÆSTHETICS.

THURSDAY, JULY 28TH.

President, Dr. F. W. HEWITT, M.V.O. (London).

The Vice-President, Mr. ALEXANDER WILSON (Manchester), occupied the chair.

Mr. H. BELLAMY GARDNER (London), opening a discussion on

The Open System of Ether Administration,

said that in employing this method it was necessary to avoid cases for which it was not suitable. Such cases were those of persons with rigid chest wall, bronchitis, or emphysema. He quoted a case to show how in an unsuitable subject much trouble had followed this method of administration of ether, when on a later date the same patient had been perfectly successfully anæsthetised by chloroform for a long abdominal operation. An essential part of the method is that the administration should always be preceded by an injection of atropine (1-120th grain), and in the case of strong men and alcoholic subjects this should be combined with one-sixth grain of morphia. The atropine prevented excessive sweating or mucus secretion and helped to avoid shock. A small prop between the teeth, a roll of gauze on the face and round the mask (which should be a frame covered with 12 layers of gauze), a large ether drop-bottle, and a tongue-clip completed the list of necessary appliances. Mr. Gardner said that with this method excitement during induction was very rare, and he was accustomed to talk his patients off to sleep, increasing at the same time the ether on the mask till this was wet through-out. When anæsthesia had been obtained it was only necessary to keep the lower part of the mask wet. If too much ether were being given a dilated pupil and laboured breathing would give evidence of it. Ether had, in the speaker's opinion, a greater obtundent effect than chloroform, and consequently crowing breathing, straining, and other reflex effects were far less liable to arise with this method than with others. It was necessary to well cover the patient with blankets, but the atmosphere need not be warmed. If moist sounds made their appearance ether should at once be abandoned for chloroform. During recovery the patients should be propped up in a sitting posture, and encouraged to cough when awake. The method was suitable for children, and offered simplicity, safety, and freedom from shock and after-sickness. By the use of Crile's apparatus it was applicable to cases of operation within the mouth, and it could be employed in the dental chair for prolonged tooth extraction, while it greatly increased the safety of operations for goitre.

Mr. A. L. FLEMMING (Bristol) said that the method provided a remarkable freedom from any tendency to faintness or shock, and he thought that this was probably due to the mechanical effect of free respiratory movement. The effect of ether in stimulating the activity of the respiratory machine was well seen when ether and chloroform were given separately by the two-bottle method. Ether might be regarded as performing artificial respiration with its secondary beneficial effects upon the circulation. It was necessary, he said, with the open method to guard against the risk of reflex circulatory and respiratory depression from the presence of mucus in the larynx or trachea. Mr. Flemming thought that in the absence of cyanosis the blood pressure was not raised by ether.

Mr. GEORGE ROWELL (London) said that the method was remarkable for its simplicity and for the freedom from complications in its results. The blood pressure was slightly raised during the inhalation of open ether and its fluctuations were slight. In his experience he had only twice had to change to chloroform, owing to glottic spasm (during the removal of a large growth of the bladder, and during an operation for fractured jaw). He thought that pulmonary after-effects were absent if chill was guarded against.

Mr. ALEXANDER BROWNLEE (Cardiff) remarked that the dropping of ether must be continuous, not intermittent. The method, he thought, was ideal for long cases, and its only disadvantages were in the case of young children, in mouth operations, in alcoholic subjects, and in the large amounts of ether used.

Mr. E. J. J. QUIRK (London) thought that combined with infusion this method was so safe that even in the severest cases no patient would succumb to shock if so treated. He regarded the preliminary injection of morphia and atropine as essential. The induction was apt to be long, and a great deal of the ether vapour was diffused about the room. For these reasons he was inclined to reserve the method for cases where shock was likely.

Mr. H. J. PATERSON (London) said that, though previously thinking that chloroform was the only admissible anæsthetic for abdominal work, he had been when in America completely converted to open ether. Also, he thought that it was of great advantage in mouth cases, to which it was perfectly adapted by Crile's apparatus, and he had operated for cleft palate under these circumstances. With regard to subsequent pneumonia, he failed to see how ether inhalation could produce a one-sided lobar pneumonia.

Dr. G. A. H. BARTON (London) said that any system which abolished re-breathing was to be regarded as an open system. He desired an apparatus for ensuring continuous dropping of ether without the necessity for holding a drop-bottle. He had met with trouble in induction.

Dr. W. STUART V. STOCK (Bristol) said that he was an advocate of the "two-bottle method." Excessive secretion of mucus under open ether was not always prevented even by the use of atropine.

Professor A. D. WALLER (London) said that open ether represented a vapour with about 10 per cent. of ether.

Others who spoke were Dr. S. W. HAYNES (Birmingham), Mr. HERBERT TANNER (London), Mr. RICKARD W. LLOYD (London), Dr. S. THOMPSON ROWLING (Leeds) (who described means for warming ether vapour), Professor MILLS (McGill University), and Dr. DAVID LAMB (Glasgow).

Mr. GEORGE ROWELL (London), in opening a discussion on

The Prevention and Treatment of Surgical Shock during Inhalation Anæsthesia,

said that treatment of shock must depend upon the physiology of the subject. After defining shock, Mr. Rowell said that an enlarging pupil was a common quantitative and helpful guide. A falling blood pressure was the first sign of shock and a rising blood pressure the first sign of recovery. Too large doses of anæsthetic, he said, provided a common cause of shock. Chloroform was the worst and ether was the best anæsthetic they had from the point of view of shock. Good clinical proof of this was presented by cases investigated by Dr. Edwards, the charts of which Mr. Rowell showed. The action of mixtures depended on the proportions of ether and chloroform which they contained. The general effect of obstructed respiration in causing fall of blood pressure was well shown clinically both with ether and with chloroform. The general condition of the patient, pyrexia, &c., and the surgical procedures were involved in the causation of shock. In operations such as excision of the rectum, ether by the open method gave a powerful means of reducing shock, and unless contra-indicated this method should be chosen whenever shock was to be expected. Other means to be adopted were warming the atmosphere of the room, administration of nutrient enemata, strychnine before the operation, and saline transfusion before and during the operation. This last measure, first advocated by Arbuthnot Lane in 1891, was best carried out by the simple apparatus which he now employed and which Mr. Rowell showed. The most valuable drug for combating shock was extract of the infundibular portion of the pituitary body. This acted within five minutes when intravenously injected, though when given beneath the skin it might take as long as 30 minutes. Its effect lasted in one case as long as three days. Mr. Rowell believed that there was a connexion between low blood pressure and after-sickness, the latter not showing itself if the former were avoided.

Professor G. W. CRILE (Cleveland, Ohio) discussed the methods of operation likely to be attended with a minimum amount of shock, and the amount of shock arising from injury to the different organs and tissues of the body. He described also the psychical origin of shock, this being present, too, in anæsthesia when only portions of the brain were to be regarded as being asleep. There was great promise, he believed, in the combination of local with general anæsthesia. An anæsthetist should be warned in advance by the surgeon of manipulations likely to produce shock. In operations upon the larynx cocaine should be employed, and in mouth operations ether by the apparatus which he showed. In Graves's disease he had seen fear cause death, and Professor Crile outlined the process by which safety was to be obtained, involving several days' training of the patient to the presence and performances of the anæsthetist, and the extensive use of cocaine over the operation area. He handed round drawings to show the morphological changes in brain cells produced by the uncomplicated action of fear. Morphia and atropine before the operation, gentle handling, and the use of nitrous oxide minimised the production of shock by psychical and traumatic agencies. Rest was the only restorative they had for the changes produced by shock in the cortical cells; direct transfusion of blood could combat the anæmia of shock following blood loss.

Mr. J. P. LOCKHART MUMMERY (London) defined shock and accepted Professor Crile's views upon its causation. His own experiments had substantiated much that Professor Crile had just said. He found, experimentally, that the deeper the anæsthesia the less was the shock, but, at the same time, deep chloroform anæsthesia itself produced shock. He thought that a mixture of ether and chloroform was clinically often as good as ether alone. The Trendelenburg position was of great value in preventing shock, and it was to be employed whenever possible. He had great faith in the continuous infusion of saline. Bandaging the limbs was, he said, another important aid, as was keeping up the body temperature, for which purpose he used a gamgee suit. He believed in the administration of frequent small amounts of easily assimilated nourishment.

Mr. J. D. MALCOLM (London) believed that the phenomena observed by Professor Crile were capable of an entirely different interpretation from that which they were generally made to bear. The loss of fluid from the vessels to the tissues was not sufficiently taken into account, and there was, he maintained, no proof that shock was accompanied by lowered blood pressure. Observations of pithed animals were of no value unless it was shown that the conditions here were the same as in the case of patients with shock. Shock was accompanied, he said, by diminution of the CO_2 in the blood. Fall of blood pressure might be caused by intense muscular contraction if fluid escaped from the vessels or the tissues of the body. Mr. Malcolm declared that improvement in the administration of anæsthetics had done as much to diminish shock as improvement in surgery. He did not believe in the administration of vaso-constricting agents; fluid, however, must be given, and quickly, as by subcutaneous infusion of saline.

Professor LEONARD HILL (London) said that shock was primarily due to paralysis of the synapses of the nervous system. He proceeded to explain the arguments defending this contention, and to show that the vascular condition in shock was not the primary element, but that this was nervous in its seat. Strychnine, he explained, broke down the resistances confining afferent stimuli to certain areas and let them free, general convulsions resulting instead of merely a reflex movement. If the spinal cord were divided in the lower cervical region shock in the lower part of the body appeared, but not in the upper; redividing a little lower, no shock followed. Shock from spinal cord lesions was independent of blood pressure. If there was transection just below the pons severe spinal shock followed, but no reduction in the blood pressure. Impulses were constantly streaming into the spinal cord, keeping it active; if these were cut off there was shock, of which blood pressure was independent. The circulation was very largely maintained by muscular movement, and Professor Hill described an experiment upon a hutch rabbit and a wild rabbit, showing the important part played by muscular tone in avoiding shock. Henderson had tried to prove that the washing out of body gases was the only cause of shock. Experiments in Professor Hill's laboratory entirely refuted this contention.

Mr. ROWELL, in reply, said that if all that had been put forward for open ether were true it was most important to place the facts before the profession. He moved that—

In view of the interest excited by open ether and the strong claims made on its behalf this section recommends the Council of the Association to appoint a committee to report exclusively on this subject

This motion was carried unanimously.

BACTERIOLOGY.

FRIDAY, JULY 29TH.

President, Dr. CHARLES J. MARTIN (London).

In the absence of Dr. D. A. WELSH and Dr. H. G. CHAPMAN (Sydney), Dr. J. C. G. LEDINGHAM (London) read their paper on

The Interpretation of the Precipitin Reaction.

They said that the different phenomena of immunisation were but different aspects of the response of the animal body to the introduction of alien substances within its tissues, and the precipitin reaction was one form of this response. When the blood serum of an animal that had received repeated injections of some alien protein was mixed outside the body with a solution of this alien protein, then precipitation might occur. This, apparently one of the simplest of the immunity reactions, was yet one of the hardest to interpret. The authors did not propose to discuss

what corresponding property had been acquired by the blood *in vivo*, nor what was its relation to the general defensive mechanism. They were concerned with the interaction of antiserum and antigen, indicated by a precipitate *in vitro*. From the beginning they had looked upon the reaction as taking place between known weights of the interacting substances. In their later work the weighing of the precipitate marked a further advance in accuracy. The remarkable nature of the precipitate was thus revealed, for the precipitate was formed mainly of those constituents of the antiserum that gave the antiserum its specific precipitable character. It was probable that the specific antisubstance (precipitin) brought down with it from the antiserum non-specific molecules (e g., complement), which also went to form the precipitate. It was probable also that the antigen entered to a relatively slight extent into the composition of the precipitate. All their work tended to show that the main mass of the precipitate was composed of antisubstance (precipitin) which could be weighed. A ponderable antisubstance had hitherto been unknown, but in the precipitate of a precipitin reaction they had a remarkably near approximation to such a substance. The following conclusions were arrived at: 1. The main mass of the precipitate was formed by constituents of the antiserum. 2. There was a close relationship between the weight of precipitate and the amount of antiserum. 3. In total interactions the weight of precipitate was independent of the weight of antigen. 4. In partial interactions the weight of precipitate was conditioned by the quantity of antigen. 5. It was therefore erroneous to speak of the precipitin of the antiserum coagulating the antigen, or to regard the antigen as the precipitable substance. 6. Inhibition phenomena were inconsistent with the hypothesis that precipitoid was developed, but were consistent with the finding that heated antisera acted directly on precipitate by specific solvent action. 7. Their interpretation of the precipitin reaction appeared to have important practical bearings (*a*) on the identification of the specific origin of proteins and on the separation of closely related species; (*b*) the determination of the value of morphological characters of the orders, genera, and species of plants as suggested by one of them; and (*c*) on the improvement of methods for testing the interaction of antigen and antiserum by the deviation of complement.

Dr. F. A. BAINBRIDGE (Lister Institute) read a paper on

An Outbreak of Gastro-enteritis due to Bacillus Paratyphosus B.

He said that during the period of June 10th to June 14th, 1910, 14 people living in four households suffered from symptoms of acute gastro-enteritis—viz., vomiting, diarrhœa, abdominal pain, and collapse. The onset was sudden, the diarrhœa was profuse, and the stools were of a characteristic green colour; fever was present in all the patients and lasted from three to seven days, the temperature ranging from 101° to 103° F. No spots, enlargement of the spleen, or other symptoms suggestive of typhoid fever were observed. Two of the patients were very ill for a time and in all cases convalescence was slow, being retarded by severe attacks of circulatory failure in at least three patients. Three specimens of fæces were obtained; one was practically sterile, but the others yielded a bacillus that in its cultural characters and its agglutination and absorption reactions was identical with the bacillus paratyphosus B. Blood was obtained from six of the patients and was found to agglutinate both the bacillus isolated from the fæces and also standard strains of bacillus paratyphosus B in dilutions of 1-200 to 1-400. It was highly probable, therefore, that the outbreak was caused by the paratyphoid bacillus. It was at first supposed that infected food was responsible for the outbreak, but no one article of food had been partaken of by all the patients, and the dates of onset and distribution of the illness were at variance with this view. The fact that the cases occurred in several households, and that the only link between the different households was that visits had passed between them at the time of the outbreak suggested the possibility of a paratyphoid carrier infection. One person was found who had not been among the sufferers, whose blood agglutinated the paratyphoid bacillus in high dilutions, and whose fæces contained bacilli which on partial examination closely resembled the bacillus paratyphosus B. The outbreak was of interest, since attacks of acute gastro-enteritis caused by bacillus paratyphosus B had not previously been recorded in this country.

Other papers read were: Variation among Bacteria, by Dr. W. J. WILSON (Belfast); (1) Remarks on Variation and Mutation, and (2) Studies on the Anaerobic Growth of Intestinal Micro-organisms, by Dr. W. J. PENFOLD (London); The Identification of the B. Typhosus in Mixed Culture by Complement Fixation, by Dr. H. R. DEAN (London); Serum Treatment of Dysentery, with Notes on the Bacteriological Diagnosis of Dysentery, by Dr. M. A. RUFFER and Mr. J. G. WILLMORE (Egypt).

DERMATOLOGY.

THURSDAY, JULY 28TH.

President, Dr. PHINEAS S. ABRAHAM (London).

A number of interesting clinical cases engaged the attention of the section. Amongst these may be mentioned two cases of extensive, irritable, red induration of the upper part of the body, recognised to be the early stage of mycosis fungoides; lupus erythematosus cured after taking soured milk; rodent ulcer and lupus cured by carbon dioxide snow; macular anæsthetic leprosy; and Darier's disease.

After a few words by the PRESIDENT,

Dr. DUNCAN BULKLEY (New York) read a paper on

The Value of a Very Restricted Diet (Rice) in Certain Acute Inflammatory Diseases of the Skin.

He began by pointing out that although many cutaneous lesions were due to the action of micro-organisms, yet their presence was not always attended by disease of the skin. Even in the same individual the micro-organism might at one time give rise to a cutaneous disease, and at another time no such result followed. It was therefore apparent that the micro-organism required the presence of some other factor, as yet unknown, to ensure its deleterious activity. Although pus cocci were almost invariably present in the skin, they but rarely led to boil and carbuncle formation, nor did inoculation of a healthy skin always produce these lesions. The study of the metabolic processes of the body shed light on the pathology. Careful and repeated volumetric analyses of the urine, that true indicator of the state of the arterial blood, were necessary for successful practice. Metabolism was influenced by the action of the organs and emunctories, and these in turn were influenced by the food and drink taken. Very little had yet been done towards the study of the effect of diet in diseases of the skin. Everyone knew that certain diet affected certain diseases, such as urticaria, acne, eczema, and psoriasis; for example, alcohol[1] was harmful in many skin diseases, and vegetarianism was most helpful in psoriasis.[2] In acute and inflammatory conditions the effect of restricted diet was most striking. After indulgence in sweets and chocolate, urticaria, erythema, and acne in particular were liable to fresh outbursts, and over-eating and drinking frequently led to acute eczema. In 1906 he first began to employ a strict dietetic regimen in a man suffering from bullous erythema multiforme after a heavy meal with champagne. The man was in agony with the intense burning and itching. His diet was restricted to boiled rice, bread, butter, and water for a few days, and he was given a laxative and a soothing lotion. In five days he was much improved, and he remarked that he had recovered much more rapidly than he had done during two previous attacks. Dr. Bulkley had since employed this method of treatment with the happiest results in very acute cases of lichen planus, dermatitis herpetiformis, and urticaria; also in rapidly spreading congestive types of psoriasis and in acute generalised eczema. He related in detail the case of a physician who had recovered rapidly under this dietetic regimen from a troublesome acute eczema. Patients usually objected and desired to include other articles of diet, but in his experience such departure from the strict diet had delayed the cure. As regarded the *rationale* of this diet, he considered that they knew less about the metabolism of fats and carbohydrates than of proteids. The waste products of the former were carried off by the lungs, the excretory products of which they had not learned to analyse easily; the waste products of the proteids were carried off and readily recognised in the urine. In many skin diseases the urinary secretion

[1] Bulkley: The Influence of Alcohol in Certain Diseases of the Skin, Medical Record, Feb. 19th, 1910.

[2] Bulkley: The Value of an Absolutely Vegetarian Diet in Psoriasis, Journal of the American Medical Association, Feb. 23rd, 1908.

was imperfect or defective, and proteid metabolism appeared to be at fault.[3] It was reasonable, therefore, to endeavour to relieve the liver and kidneys by diminishing the proteid intake. Rice and white bread had been selected as the foods most free from nitrogen. Milk was avoided, as having a large proteid element, but water was permitted freely. Coffee, tea, and chocolate were prohibited, inasmuch as they possessed xanthin products. By free use of rice, bread, and butter sufficient Calories were introduced. Even with a strict vegetarian diet volumetric analysis of the urine revealed nitrogenous elements; with the rice diet effete endogenous nitrogenous material was enabled to be removed from the system, while the amount of urea remained nearly normal. The strict regimen was observed for five days; then a moderate mixed meal was permitted at noon, and the rice, bread, and butter continued at the morning and evening meals. After a few more days breakfast was modified, and a few days later the evening meal also. The evening meal should be restricted for a considerable period of time. The method of preparation of the rice was important; it should be well cooked with water (never with milk), then left uncovered over the fire until it was flaky and dry. It should be eaten slowly, with a fork, with butter and salt. Thorough mastication was essential. Water should be taken separately, as much as desired; it could be hot if preferred but not iced. Later milk could be given, warmed, without any solid food, about one hour before meals, especially the evening meal.[4] Careful attention to all those small details was of vital importance for success in dermatology.

Dr. P. G. UNNA (Hamburg) said that he had not had much experience in treatment by diet, because the cases which came under his observation were usually those which had already undergone treatment by other physicians with dietetic restrictions. In France dermatological patients always received a long list of articles of diet to be avoided, and he had become very sceptical as to the necessity of avoiding most of these forbidden articles of diet. He had learned more from Dr. Bulkley than from any continental dermatologist; Dr. Bulkley had mentioned a practical diet to be taken, not a list of articles to be avoided.

Dr. HARTZELL (Philadelphia) said that in definite diseases, such as diabetes, science was decided that certain articles of diet must be avoided. They were not yet ready to say with any degree of scientific accuracy what should be taken in cases of eczema. He could not agree as to the great superiority of a vegetarian diet in psoriasis.

Dr. ALFRED EDDOWES (London) had found that sweet and fatty foods and also highly salted articles of food were extremely injurious in cases of urticaria. A large amount of water was advisable in most cases of irritating skin diseases. Alcohol was to be given when the digestion was weak and the appetite small, and was contra-indicated in cases with large appetite. Idiosyncrasy explained unusual attacks; in certain individuals he had known rhubarb, grapes, eggs, turbot, and onions exacerbate or initiate outbreaks of eczema and urticaria. He had found sour milk good in lupus erythematosus.

Dr. R. B. WILD (Manchester) remarked that the present chaos of medical opinion in regard to diet was due to the fact that no definite rules could be laid down with the present inadequate state of physiological knowledge. Roughly speaking, there were three groups into which he could relegate skin diseases with definite relation to diet. 1. Subjects who developed urticaria or other skin lesion on taking articles of diet which the normal individual could take with impunity. They were, as a rule, of a "vaso-motor type"—i.e., their vascular control was readily upset, they flushed readily, and often exhibited in addition an idiosyncrasy to certain drugs. 2. Subjects of malnutrition, usually found in the hospital class of patient. These recovered from their eczema or other skin disease when put upon a fuller and more nourishing diet. 3. Subjects who suffered from excessive feeding, chiefly of nitrogenous food-stuffs. A reduced diet such as that described by Dr. Bulkley would immensely benefit such patients. He had found that fat, whether rancid or overheated, as by frying, was decidedly injurious. Sugar, a comparatively recent addition to the diet of mankind, was taken in excess nowadays. Examination for life insurance had revealed the fact that many people exhibited sugar in the urine, and many were just on the border-line of safety in that respect. Before making hard-and-fast rules it must be borne in mind that what suited one race or one climate might not suit another people with different habits of life.

Dr. DAVID WALSH (London) said that the skin was an organ through which were excreted certain drugs, alcohol, and the toxic products of many micro-organisms, some of which latter were definitely associated with food. These could give rise to symptomatic excretory rashes. He had advanced this theory in 1890 in a pamphlet entitled "Excretory Irritation." The internal irritant which was excreted by the skin might be (1) a drug, such as iodine or copaiba; or (2) a poison, such as gout, which was elaborated within the body; or (3) of bacterial origin, such as the exanthemata. These irritants might affect the skin alone or the other excretory channels in addition. If the skin was found to be irritated it might be reasonably suspected that there was irritation going on also within the body in the other excretory outlets, such as the intestines and the kidney, and treatment should be directed to those situations as well as to the surface of the body where the lesion was visible to the naked eye.

Dr. W. KNOWSLEY SIBLEY (London) considered that internal treatment and diet had been too much neglected in dermatology, and referred to the widely recognised ill-effects of alcohol on congestive conditions of the skin. The individual idiosyncrasy had to be carefully considered when gout was present.

Dr. G. PERNET (London) did not agree that internal treatment had been neglected by dermatologists. He made some pointedly humorous observations which the section thoroughly appreciated.

The PRESIDENT referred to the adverse action of fresh fruit on congestive skin conditions. In Jamaica sugar was eaten in enormous quantities, a quarter of a pound daily, without any untoward result, but such a quantity could not be taken with impunity in this country.

Dr. BULKLEY, in reply, said he had found that a strict vegetarian diet was of extreme value in the majority of cases of psoriasis. His opinion was based upon his experience of carefully recorded private cases and not upon the uncertain experience of hospital patients. There had been no accurate scientific record yet made as to the treatment of psoriasis by meat diet, but only hasty generalisations from a few individual cases.

Dr. E. R. MORTON (London) read a paper on

The Use of Solid Carbon Dioxide in Dermatology.

He said that the use of this substance had been introduced by Dr. W. A. Pusey of Chicago some three years ago, and had been brought to his (Dr. Morton's) notice last year by Dr. Geyser of New York. The principle involved in the use of solid carbon dioxide was that of refrigeration, but it differed from ordinary freezing in several respects. In ordinary freezing the temperature of the frozen part rarely fell much below 0° C. and the after-effects were trifling. The effects obtained after the use of solid carbon dioxide were due, he considered, to the low temperature of the frozen parts, as the substance itself had no special action. During the freezing process the cells became solid and rigid; it was safe to assume that the cells suffered mechanical injury. In radiotherapeutic literature he had found references to the "selective action" of the rays upon abnormal or unhealthy cells. It was his opinion that this so-called "selective" action merely meant that the abnormal cells had less vitality and were therefore more readily acted upon by the therapeutic rays; there was no proof that the rays had any "selective" power to destroy diseased cells with their diminished resistance. Applying this hypothesis to solid carbon dioxide, he believed that when the application was too lengthy all the cells were destroyed; if not too lengthy the abnormal cells alone were destroyed. The questions of the duration and degree of pressure of the application therefore were all-important. Experience of a few cases taught more than volumes of print. The average time was from 30 to 40 seconds. For superficial reactions 10 seconds was long enough; for a hard wart, 2, 3, or even 4 minutes were required. As regarded the degree of pressure, this should be sufficient to arrest the circulation when a vascular growth was treated.

[3] Bulkley: Imperfect or Deficient Urinary Excretion as Observed in Connexion with Certain Diseases of the Skin, Journal of Cutaneous and Genito-Urinary Diseases, March, 1900, p. 99.

[4] Bulkley: On the Proper Employment of Milk, especially in Certain Diseases of the Skin, Dietetic and Hygienic Gazette, May, 1908.

When a bone was superficially situated the soft tissues were easily frozen to it; thus nævi of the scalp were very satisfactorily cured. Light pressure gave no result as the CO_2 evaporated into gas; for this reason a stick of the snow could be handled with safety. Dr. Morton then described the effects of treatment of a nævus by firm pressure for 30 seconds. A depression remained for about 1 to 1½ minutes; then the reaction started, with swelling, and a wheal appeared within an hour. Vesication followed, and crusting in five days. The vesicle should be pricked with a sterilised needle and dressed with antiseptic ointment; the crust should not be removed. There should not be necrosis or sloughing unless a prolonged or repeated application had been made. An application given on two successive days did well for fleshy moles. Carbon dioxide did not act upon the tissues as caustics did. The scars after CO_2 applications were very good, because there was no gross tissue destruction. Capillary nævi could be cured in 90 per cent. of the cases by one application of CO_2 and no anæsthetic was required for this form of treatment. As the skin over a nævus was not normal, the resulting scar was not satisfactory. In cavernous nævi, Dr. Morton had 65 per cent. of the cases cured by one application. With port-wine marks he had not been so successful, but hoped that with shorter and repeated applications he might in the future succeed. Applications of 40 seconds' duration had yielded good results in lupus vulgaris; the pencil was applied after removing crusts. In lupus erythematosus short applications were called for; the effects equalled those of other remedies. For moles and warts nothing could be more satisfactory, and these fleshy growths required prolonged applications, even as much as four minutes. The method was not useful for hypertrichosis. He had treated four cases of rodent ulcer with complete success. One was treated on April 29th, 1910, by 40 seconds' firm pressure, after scraping away the granulation tissue; it had healed in a fortnight and remained healed. In conclusion, Dr. Morton said he had treated over 2000 cases with CO_2, and considered that this agent would have a great future for use in cases which had been regarded as suitable only for radium. Radium was so expensive that he predicted CO_2 would be employed in its stead in many cases, thus saving both time and money.

Mr. J. HALL-EDWARDS (Birmingham) exhibited an apparatus which he had devised for the application of carbon dioxide. He had found that carbon dioxide acted well in those cases which were usually treated by radium, and its effects were more rapid and more readily supervised.

Mr. WILLMOTT H. EVANS and Dr. G. NORMAN MEACHEN (London) exhibited the apparatus which they had found useful for the administration of the CO_2 snow.

Dr. HARTZELL referred to the small cylinders used for inflating motor tyres as being useful for treating a single case when one did not desire to employ the large cylinders in which the gas was usually stored.

Dr. WILD, Dr. PERNET, and Dr. WALSH also testified to the value of CO_2 in dermatology.

Dr. UNNA referred to the disadvantage of the pain ensuing during the stage of reaction. He had been greatly disappointed with its failure to cure port-wine marks.

The PRESIDENT said that he had not been satisfied with the result of the CO_2 snow in lupus vulgaris. He had at present under his care a case of keloid acne which was improving favourably. In some cases the pain after the application was very great. The method of treatment of skin diseases by extreme cold was not new; it had been employed about twenty years ago in France, when methyl chloride had been used to freeze the tissues.

Mr. G. W. DAWSON (London) read a paper on

Cutaneous Diphtheria.

He pointed out that diphtheritic contamination of open wounds had been common during epidemics in the early part of the nineteenth century, but was nowadays very rare. Chenel had mentioned it in 1759, and in 1828 Trousseau had described it as attacking parts of the skin where the epidermis was abraded—e.g., blisters and leech bites. Such wounds, if attacked by diphtheria, became painful, with subsequent development of a grey membrane. Mr. Dawson had seen four of the ten recently reported cases of cutaneous diphtheria. In nine of these no membrane had been present nor any other diphtheric sign. This class of case was of great importance, as it was usually not suspected that the dangerous germ of such a disease as diphtheria was present in cases who presented no sign of sore-throat or other usual diphtheritic manifestation. Only two of the ten cases reported had been adults, and four had died. Seven had resembled an impetiginous eczema; three had had vesicles and bullæ with profuse fœtid discharge. Four had had severe conjunctivitis with purulent discharge. The commonest type resembled impetiginous eczema, affecting chiefly the head and face, with conjunctivitis, and sometimes also otorrhœa and rhinitis. The diphtheria bacillus had been present in all, and confirmed, not merely by the microscope, but by cultural tests and virulence on animals. Ordinary external treatment had been tried for years without effect in most of the cases; they had only yielded after diphtheria antitoxin had been administered. Mr. Dawson was inclined to agree with Trousseau's observation that the bacillus attacked only a skin that was broken; but there was room for investigation as to whether the eczema or other cutaneous disease preceded or followed the invasion of the diphtheria bacillus. Mr. Dawson then gave brief particulars of the ten cases, one of which was shown at the section.

GYNÆCOLOGY AND OBSTETRICS.

THURSDAY, JULY 28TH.

President, Dr. MARY A. SCHARLIEB (London).

Dr. W. W. H. TATE (London) introduced a discussion on

The Treatment of Fibro-myomata Complicating Pregnancy.

He said that the association of the two conditions, pregnancy and fibroids—one physiological and the other pathological—might be a cause of serious risk to the patient, and the successful management called for special care and good judgment. There was a tendency among some gynæcologists and operating surgeons to over-estimate the probable dangers to which a pregnant woman was exposed who was also afflicted with fibroid tumours. Others, perhaps, might be inclined to minimise the risks. Extreme views were usually the result of prejudice, and were not conducive to the best interests of patients. In order to come to a fair and trustworthy conclusion in this subject it was essential to consider the following points: (1) The unfavourable changes which might occur in fibroids during pregnancy; (2) the frequency of miscarriage, and any special dangers arising from this accident; and (3) the increased risk of labour, whether due to post-partum hæmorrhage, septic infection, suppuration, or sloughing of fibroid. It was obvious that the natural enlargement of the pregnant uterus when associated with a large fibroid would be a cause of discomfort and might occasion serious distress. It was fair to say that where the fibroid was of only moderate size before pregnancy, and formed an abdominal swelling, there was strong reason to hope that it would not give rise to any serious distress from its size alone. When, however, a woman had a very large fibroid the chance of her becoming pregnant was small, but should such an event occur it was quite possible that serious symptoms might arise in the latter half of pregnancy from upward pressure on the diaphragm, owing to the rapid increase in size of the uterus. Necrobiotic change might occur during pregnancy and might cause serious discomfort or persistent pain, which might make interference with the pregnancy necessary. Torsion of the pedicle of a fibroid tumour during pregnancy was so infinitely rare that it need not be regarded as a practical danger. Cases of this accident had been recorded by Ribemont-Dessaignes and Grosse, by Malherbe and Grosse, and by Ivanoff. The next series of risks to be considered were those associated with miscarriage. The actual frequency of miscarriage where fibroids were present had been a matter of some difference of opinion. According to Kelly, 25 per cent. of the patients aborted. As the average for all women was stated to vary between 20 and 25 per cent., any increased frequency due to the presence of fibroids could only be very trifling. This opinion was also held by Herman. Presuming, next, that a patient with fibroids did miscarry, did the presence of the fibroid materially increase the risk of this accident? Should it be found impossible to evacuate the uterus of retained products, and sapræmic symptoms persist, the timely removal of the uterus by the abdominal route would almost certainly cure the patient, if the operation was not postponed too long. The third series of risks were those associated with labour and the puerperium. Where the fibroid was situated in the pelvis below the presenting

part it was found to cause obstruction to delivery, with the probable sequence of rupture of the uterus. The dangerous complications which might ensue from obstructed labour could be entirely avoided by an examination during pregnancy. The risk of severe post-partum hæmorrhage where fibroids complicated labour had been a cause of grave anxiety to medical practitioners for a long time, and the balance of opinion seemed to show that there was some increase in the frequency of this complication. During the puerperium a fibroid tumour might become extruded and present in the vagina. If this happened it would certainly slough and sapræmic symptoms would follow. True suppuration of a fibroid tumour was an extremely rare complication. It was invariably due to some failure in the antiseptic technique, and was therefore an avoidable complication. In his opinion only a very small number of cases called for any interference whatever during pregnancy. The grave warning words which had been expressed by some writers on this subject were contrary to experience, and would not, he believed, be accepted by practical obstetricians. The weighty words of Hofmeier might with advantage be repeated at the present day. Hofmeier said: "I believe most positively from my experience that the complications which myomata present during pregnancy, birth, and the puerperal state cause actual earnest dangers in only a few cases, and may be quite essentially diminished by patience, a cautious treatment of the birth, especially by its strict antiseptic conduct, and by careful attention to the puerperal period." In considering the treatment of these cases it would be convenient to divide them into three groups: 1. Cases in which the fibroid tumour was situated in the pelvis and must *necessarily* obstruct delivery unless the condition was relieved; these cases would include fibromata of the cervix. 2. Cases in which the fibroids arose from or encroached upon the lower uterine segment and might *possibly* cause obstruction to delivery. 3. Cases in which the fibroid or fibroids were entirely abdominal tumours and would *certainly not* interfere with delivery per vias naturales. In the first group two methods of treatment were available. If there was some mobility of the tumour it was usually possible under anæsthesia to push the tumour up above the pelvic brim. When this had been done the further course of the pregnancy was usually uneventful. If the tumour was firmly impacted in the pelvis and great force would be required—even under an anæsthetic—to push the tumour up out of the pelvis, it was safer to perform abdominal section with a view to enucleation of the tumour from the uterine wall. In the case of small fibroids of the cervix when discovered during pregnancy, it might be possible to enucleate these tumours per vaginam without interfering with the course of pregnancy. Olshausen was of opinion that the removal of polypi, and especially the enucleation of submucous fibroids from the cervix, should be postponed till the end of pregnancy, as labour might be expected to follow closely upon such operative interference. Where the tumour did not cause any definite pressure symptoms it was certainly best to postpone interference till the time of labour, when Cæsarean section, followed by enucleation of the tumour, or complete hysterectomy, might be performed. The enucleation of large cervical fibroids per vaginam during pregnancy or labour was not to be recommended owing to the risk of severe hæmorrhage which might be difficult to control. Where the interference became necessary total hysterectomy should be done. When one or more of them were found encroaching on the lower uterine segment some anxiety would be felt as to whether the tumours would cause any obstruction to delivery. They could not predict with certainty the behaviour of these tumours during labour, and there was no justification for advising surgical interference during pregnancy in the absence of urgent symptoms. Expectant attitude was followed by the most encouraging results to both mother and child. It not uncommonly happened that during labour the tumour gradually receded from the dangerous zone. The third group consisted of those cases in which the fibroids were entirely abdominal tumours. These included cases of subperitoneal pedunculated fibroids and also interstitial fibroids. In the vast majority of these cases the absence of severe symptoms made operative interference unwarrantable. Patients when the tumour was subperitoneal might complain of constant pain or severe discomfort. The greater number of these lent themselves regularly to the operation of myomectomy. The cases in which interstitial fibroids justified interference during pregnancy were few and far between. When operative treatment was undertaken in these, the whole uterus might have to be removed and the pregnancy sacrificed. In all these cases, if it should seem possible to enucleate the tumour when the abdomen was opened, the operation of myomectomy was still to be preferred. There were, however, a certain number of cases where the tumour was of large size, or where the fibroids were multiple and had shown marked increase during pregnancy, in which operative interference was not only right but imperative, and in which abdominal hysterectomy was the only suitable operation to undertake. The induction of abortion had been almost universally discountenanced as a method of treatment in these cases. The induction of premature labour in the case of fibroids causing, or likely to cause, some obstruction was equally to be condemned, as a difficult delivery with a premature child was almost certain to end in the child being still-born, which constituted an obstetrical failure. Should myomectomy be done for an obstructing fibroid, or for one causing severe pain and probably necrotic, where other fibroids of moderate size were present in the wall of the uterus, but not in themselves causing any symptoms or likely to interfere with delivery? In his opinion the answer to this question should be in the affirmative. One ought never to forget that the occurrence of a further pregnancy in any woman suffering from fibroids must be a doubtful matter, and the only chances of motherhood might depend on the patience and good judgment exercised by her medical attendant in the management of the existing pregnancy.

Dr. AMAND ROUTH (London) pointed out that it was more fully realised now than it had ever been before that fibroids complicating pregnancy only required treatment in the most exceptional cases. The softening which took place in fibroids was really for the good of the child, as it allowed the head to pass. Abortion or premature labour should never be practised in these cases.

Dr. HERBERT R. SPENCER (London) said that marriage took place nowadays at a much later age than formerly, and therefore the association of fibroids and pregnancy was common. He had never performed hysterectomy in a pregnant woman for fibroids before term. In one case he had done a myomectomy and in three cases Cæsarean section. He had had 23 years' experience, and except in these four cases had never known fibroids complicating pregnancy cause any trouble at all. It was true that patients sometimes complained of pain when they had fibroids, but an anodyne and milk diet cured this. Fibroids after abortion or labour sometimes caused inversion of the uterus. He had seen two such cases, both with septic symptoms.

Dr. CUTHBERT LOCKYER (London) referred to six cases of pregnancy complicated by fibroids. In two the pregnancy went to term and labour was spontaneous and normal. In one case pregnancy was progressing normally and the fibroid had risen out of the pelvis, the patient being then seven months pregnant. In three cases operative interference was carried out as follows: (*a*) myomectomy, pregnancy being uninfluenced thereby; (*b*) panhysterectomy, after death of fœtus; and (*c*) subtotal hysterectomy, after abortion.

Dr. ALBAN DORAN (London) thought the treatment depended on the principles of common sense and on the position of the tumour, whether it was in the lower part of the uterus, in the upper part, or about the middle. If hysterectomy had to be performed, he thought that the cervix should be retained.

Mr. C. MARTIN (Birmingham) thought that the induction of abortion was justified if uncontrollable vomiting was due to a fibroid, an instance of which he had in his own practice. He had also operated upon one case of red degeneration.

Dr. A. J. WALLACE (Liverpool) showed a specimen of a fibroid illustrating some points brought out in the discussion. He had removed it from a woman who was 45 years of age, who had been married two years, and who was four months pregnant when she became very ill with symptoms of peritonitis. On opening the abdomen a sessile tumour was found which was enucleated, and this was followed by rather severe hæmorrhage. The enucleation had to proceed so deep that the placental tissue was involved. The patient made an uninterrupted recovery.

Dr. J. N. STARK (Glasgow) recorded a case where he had to enucleate an interstitial fibroid because it was so large that it impeded the action of the diaphragm. Abortion

followed two days after a myomectomy, and peritonitis complicated the recovery.

Mr. C. HUBERT ROBERTS (London) thought that interference was only probably necessary in 0·6 per cent. of cases, and, according to the latest statistics he could obtain, fibroids obstructed labour only once in 36,000 cases. He pointed out that great care should be taken in diagnosis, and related a case of Dr. Griffith in which a fibroid of the ovary was misdiagnosed for the head of a second child, the head of the presenting child being perforated to allow of delivery. The patient died from sepsis and a fibroma of the ovary was then found. He thought red degeneration was a bogey, and certainly did not occur so often as was thought.

Dr. ARNOLD LEA (Manchester) thought the tendency of the discussion was to minimise the danger of this complication, and presented tables of five cases complicating pregnancy, three complicating puerperium. In two cases of red degeneration cultures were sterile; in one case after delivery diplococci were found. He thought myomectomy was a risky procedure.

Dr. A. E GILES (London) always thought that he was of a sanguine disposition, but when he considered the optimism of the speakers who had preceded him he could only hold himself out as a rank pessimist. He thought the complication of fibroids and pregnancy was always a dangerous one, and although the patient might get well with expert skill, speaking generally, she had run a great danger. He had had 12 cases, in 8 of which there were serious complications.

Dr. J. LLOYD ROBERTS (Manchester) thought that the danger had been understated and that 50 per cent. of the women miscarried. He had noticed that a large number of the tumours became absorbed after the labour.

Dr. MURDOCH CAMERON (Glasgow) did not believe that fibroids disappeared after labour, and in an experience of 40 years he had never known this occur. He was of opinion that in all cases of Cæsarean section the patient should be sterilised.

Mr. J. FURNEAUX JORDAN (Birmingham) believed in myomectomy. Women in country districts could always get expert advice, as competent gynæcologists were now scattered all over the British Isles. He did not minimise the danger, but surgeons were now better able to treat these cases.

Professor S. GOTTSCHALK (Berlin) read a paper on

Two Cases of Occlusion of the Bowels by a Retroverted Uterus.

Owing to the rarity of the condition none of the members had any experience of it and there was no discussion.

Professor VON HERFF (Basle) contributed a paper on

The Causal Treatment of Dystocia in Cases of Pelvic Contraction,

which was read by the Honorary Secretary. The author said that the degree of dystocia in cases of pelvic contraction was essentially determined by three principal factors: (1) The extent and character of the contraction; (2) the size and compressibility of the fœtal head; and (3) the force of the labour pains, which they could not influence. Pelvic dystocia could therefore only be causally treated by dilating the pelvis or by reducing the size of the fœtal head, and, if possible, simultaneously enhancing its configurative capacity. Dilatation of the pelvis, attained either by placing the patient in a special position or by division of the pelvis, obviated pelvic dystocia without, as a rule, endangering the life of the child. By employing a special posture, for instance, the Walcher-Klein hanging posture, for dystocia caused by a narrow superior strait, or the forced lithotomy position for dystocia due to a narrow inferior strait, dilatation could be produced, but unfortunately only in a slight degree. Still, even within such narrow limits, these methods produced excellent results. The mortality of mothers, at all times considerable, was increased by symphyseotomy to 8 per cent., by subcutaneous hebosteotomy to 4 per cent., and probably by subcutaneous symphyseotomy also to 4 per cent. But there was no doubt that the mother suffered disproportionately if the pelvis was divided; at the same time 8 to 9 per cent. of the children were lost. Under these circumstances pelvic section, as a causal treatment, could only be valued as a last resource when the mother absolutely desired a living child, and when the asepticism of the case was too doubtful to admit of any other form of delivery. *Pelvic section should only be employed as a last resource for multipara.* A further treatment of pelvic dystocia made the child the object of attack by the induction of premature labour or by reducing the size of the child by an obstetric operation. Theoretically, and in all well-managed clinics, the sacrifice of a living child should be a thing of the past. As a fact, the author had never in his life sacrificed a living child, except in the case of hydrocephalus. In 80 to 90 per cent. of induction cases delivery occurred spontaneously. It was only necessary to operate in exceptional cases; for instance, in the case of a faulty position, or unfavourable presentation, or if some mistake had been made in calculating the obstruction. He had to perform such secondary operations in 13·5 per cent. of 120 cases of induced labour. He was not able to dismiss more than 80 per cent. alive in the second week after delivery, yet the chances of life of these children were in no way less favourable than those of children delivered by Cæsarean section or symphyseotomy. Even if 20 per cent. of the children born in premature labour died, which was about 11 to 12 per cent. more than in the case of pelvic section, it must not be forgotten that the mother was hardly inconvenienced. Not only were the trials of a painful delivery considerably diminished, if not completely removed, but the lying-in period passed without any complication, the same as after delivery at full term. Neither was there any danger of a permanent injury to the patient, in strong contrast to the results of pelvic section. Undoubtedly the causal treatment of pelvic dystocia with the induction of premature labour was somewhat more than twice as dangerous for the child as division of the pelvis, but the mother was spared in every way. If the dystocia was too severe Cæsarean section must be performed; the child was less endangered; its chances of life were excellent. The total mortality was 7·5 per cent. and in 150 cases reported by Schauta 0 per cent. The mother, however, was exposed to considerable danger. The total death-rate was 7 per cent., and even when the cases were chosen, as in Schauta's cases, 2·6 per cent. Moreover, the lying-in period was more troublesome and often accompanied by unlooked-for complications. Another thing to be feared was rupture of the uterus at a future birth, not to speak of cicatrix hernias. It was true the latter could be avoided by employing supra-symphyseal section. This summary showed that the accoucheur who placed the mother first must employ artificial premature labour as the causal treatment of pelvic dystocia. Those who placed more weight on the child must employ, in the first place, Cæsarean section, and, in the second place, pelvic section. The general aim in treating pelvic dystocia should therefore be, in the first place, the promotion of spontaneous delivery. Causal treatment must be reserved for graver cases. Nowadays, the Parisian schools preached the strictest and most radical conservatism, as if it were an eminent achievement of modern surgery. According to them, we were to await delivery with eventual recourse to Cæsarean section, and to exclude the induction of premature labour, the use of the high forceps, and prophylactic version. But the fact was continually overlooked that the same results were to be obtained with less danger to the health of the mother by means of a moderate conservatism in the form of induced premature labour and the use of the high forceps, leaving on one side prophylactic version. This had been sufficiently proved by the results of the Frauenspital in Basle, the statistics of which he placed before them. A glance through the tables showed that a moderate conservative treatment of pelvic contraction by means of induced premature labour was productive of at least as good results as a radical convervatism combined with division of the pelvis and Cæsarean section. There could be no doubt that accoucheurs who estimated the life of the mother higher than that of the child, who sympathised more deeply with all who suffered in consequence of contracted pelves, must certainly employ the induction of premature labour, a method so easily carried out by means of puncturing the membranes.

In connexion with this paper Professor DÖDERLEIN showed beautiful drawings dealing with his operations of extra-peritoneal Cæsarean section and subcutaneous hebosteotomy.

Dr. J. MUNRO KERR (Glasgow) had often performed pubiotomy, but had never performed extra-peritoneal Cæsarean section. He had experience of 75 Cæsarean sections; the ordinary method of doing it was a very simple one, and he thought that unless there was some great advantage to be

gained it would be a pity to replace it with a more complicated one. He should like to know what advantage Döderlein's method had over the ordinary methods, and thought that certainly in infected cases it should not be performed, since the cellular tissue would become infected. Professor Döderlein stated that by the usual method the intestines often became adherent to the uterus, but he had never known a case in which this occurred.

Dr. SPENCER thought that one of the chief points of Cæsarean section performed by ordinary methods was that the child could be delivered in 60 seconds, whereas Döderlein's method took 5 minutes.

NAVY, ARMY, AND AMBULANCE.

THURSDAY, JULY 28TH.

President, Colonel ANDREW CLARK, A.M.S. (T.F.), (London).

Fleet-Surgeon W. W. PRYN, R.N., communicated a paper on

Tests for Colour Vision.

He said that for many years the Admiralty had aimed at a very high standard of physical fitness in executive officers. In 1887 "imperfect perception of colours" appeared in the long list of physical disabilities, and in the same year the use of wools was authorised as a test for colour perception. The importance of the subject could scarcely be overrated. If a candidate were entered with organic heart disease he would probably be invalided in a few years and the cost of his training would become a loss to the State; but should the subject of colour-blindness be accepted he might, at any time, be the cause of the loss of a battleship and seven or eight hundred officers and men. For some 20 years Buxton's marine telechrome had been used for colour-vision testing at the Medical Department. As a rule, candidates named the coloured lights and matched them with wools without the least difficulty, but when lights were misnamed or the wrong skein was selected as a match the wool-test was applied, and Holmgren's directions closely followed. The subject of colour vision had lately been receiving the attention of the Director-General, and with a view to the adoption of an efficient test for general use in the navy Dr. Edridge-Green's latest pattern colour-perception lantern had been on trial. The apparatus consisted of four discs, three carrying seven coloured glasses and one carrying seven modifying glasses, each disc having also a clear aperture. This lamp placed at one's disposal a much larger number of possible combinations. Some very hard things had been said of Holmgren's test, it having been maintained that it allowed some candidates to be passed who ought to be rejected, and others rejected who ought to be passed. Used as a check on the lamp test, as had been the custom at the Admiralty, the Holmgren test had been found very useful. A candidate who had failed with the lamp almost invariably broke down with the wools when the test was carried out strictly in accordance with Holmgren's directions. It had been said that colour-blind persons would pass Holmgren's test; that, however, was not his experience. In conclusion, he thought that an examiner should himself have normal colour vision, and that colour vision as required for sea service was best tested by means of a lamp. Of the lamps which had been used he thought the Edridge-Green was the best form. The practice of requiring the coloured lights to be matched with wools was to be recommended, and the Holmgren test was useful as an auxiliary.

Dr. F. W. EDRIDGE-GREEN (London) said that he must pay this tribute to the Admiralty, that he had examined many men rejected by them and never found one who was normal sighted, though he had examined very many normal-sighted persons rejected elsewhere by the Holmgren test.

Fleet-Surgeon PRYN, in reply, said that if he had examined candidates by the Holmgren test alone he would probably have had the same results as others, but in his experience candidates who failed with Buxton's lamp almost always showed with Holmgren's test at least a feeble chromatic sense, and before a candidate was rejected he liked him to convict himself by deed as well as by word.

Fleet-Surgeon G. T. COLLINGWOOD, R.N., communicated a paper entitled

Naval Recruits.

He referred to the physical and medical examination of recruits and gave tables showing the causes of rejection arranged as nearly as possible in the order the rejection defects were noted. About 50 per cent. were rejected medically as unsuited for the navy, but it did not follow that they were physical wrecks or degenerates. He thought it seemed probable that due attention to the teeth, &c., and the training of the children in our schools, might lead to a diminishing number of rejections from that and other causes.

Lieutenant-Colonel R. J. S. SIMPSON, R.A.M.C., said that many cases of disordered action of the heart were, in fact, of a neurasthenic type (a constitutional condition), associated with high blood pressure, purple hands, and a rapid capillary reflux. The condition did not seriously interfere with the work to be done.

Lieutenant-Colonel S. GLENN ALLEN, R.A.M.C., said that he had been connected with recruiting for the army in the London District during the last two years. He supported the view advanced by Lieutenant-Colonel Simpson as regards the cause of disordered action of the heart. Every man whose pulse-rate reached or exceeded 112 per minute and was maintained at that rate during the examination was rejected. One other point he would like to draw attention to was the large number of rejections for the navy as compared with the army. Apparently all naval recruits had to pass a colour-vision test, which was not required in the case of army recruits. That, however, did not explain the large difference in the figures: there must be some difference in the physical standard demanded or in the quality of the recruits seeking admission.

Fleet-Surgeon PRYN said that for the public service he thought it wise to aim at the normal. With regard to the question of smoking and heart trouble, he thought that a candidate who abstained from smoking for three months would very likely pass, but, at the same time, he would very likely be undesirable, as he would probably smoke after entry and suffer again.

ODONTOLOGY.

THURSDAY, JULY 28TH.

President, Mr. J. HOWARD MUMMERY (London).

Mr. KENNETH W. GOADBY, continuing the discussion on

The Prevention of Dental Caries,[1]

first briefly reviewed the steps in the pathology of dental caries, pointing out that while many predisposing factors of etiological importance existed, the real exciting causes were fermentative bacteria producing localised acid formation. Speaking on the reaction of the buccal secretions, he said that from the point of view of the bacteriologist a good deal of importance attached to the reaction of the oral secretions. Saliva was generally stated to be alkaline, but it was rare to find saliva other than slightly acid to litmus paper even in mouths entirely free from caries. In examining the mouths of patients at the Seamen's Hospital he had noted two facts: (1) that the mouths were invariably slightly acid; and (2) that although dental caries was not present, turgidity and early inflammation of the gum existed in a large number, and definite gum affections were present in a very considerable number; whilst in the healthy mouths free from caries a considerable number of the organisms of putrefaction were present, associated with a small number of organisms capable of producing acid from carbohydrates. In examining a number of monkeys at the Zoological Gardens some time ago an exactly similar condition was found—namely, a large number of organisms of the putrefactive type, a smaller number of carbohydrate fermenters, together with a slightly acid reaction. Individuals suffering from dental caries could be divided into two classes: (1) those in which caries was rampant, where fillings rapidly gave out at their edges, and in whose mouths it was common to say the teeth were chalky; and (2) those in which dental caries was progressing but slowly, attacking perhaps only a tooth around the bands of an artificial denture or in some sequestered position which did not get cleaned in the ordinary processes of mastication or of hygiene. It was impossible to enumerate all the acid-forming bacteria found, but certain species were present more frequently than others, and were conveniently grouped as follows: Members of the coccal group—staphylococci (generally S. albus), streptococci (commonest type S. fæcalis); sarcinæ, S. lutea, S. alba (occasionally), S. aurantiaca (rarely); bacilli of the lactic acid group; saccharomyces group. In

[1] THE LANCET, August 6th, 1910, p. 399.

the majority of instances a 2 per cent. solution of glucose or maltose in peptone water having a reaction neutral to litmus would show an acid reaction in from five to six hours, often less, with any of the above organisms. He had made a number of experiments with regard to the fermentation of cheap sweets with cultivations of bacteria obtained from carious mouths. Solutions containing 2 per cent. of the given carbohydrate obtained from a given sweet were made up with 1 per cent. peptone water and brought to the same degree of alkalinity. These were inoculated with cultures obtained from carious mouths of bacilli of the lactic acid group, organisms of the coccal group, and yeasts. In 24 hours the amount of acid produced in the case of chocolates was equal to about 1·0 per cent. of decinormal lactic acid, whereas in the case of sweets of the barley sugar type the amount of acid in the 24 hours could scarcely be estimated. The class of organisms, blastomyces, were found constantly associated with acute caries. In the films made from the carious process direct, the organisms existed as longish rods, occasionally as mycelium; but when grown on artificial media generally took on the ordinary yeast form, only occasionally developing true mycelium. These organisms were able to withstand a considerable concentration of lactic acid, and at the same time able to go on fermenting fresh supplies of carbohydrates, providing the excess was neutralised locally, as it invariably was, in dental caries by the adjacent lime salt of the tooth. The staphylococcus viscosus became attached to the teeth generally in sheltered positions, and fermentation occurred through the layer which was formed on the surface of the enamel as through an osmotic membrane, the dissolved lime salt diffusing out and the fresh acid diffusing in. In this way considerable patches of enamel became damaged and later on broke down, or other bacteria found their way through the damaged enamel and gradually continued the process already set up. Prophylaxis of dental caries might be attempted in two ways—either by the removal of the fermentable substance by the use of the usual methods of hygiene and the adoption of a suitable diet in chronic caries, or else by changing the flora of the mouth itself in acute caries. In one of his earlier papers he had suggested that it might be possible to combat dental caries by crowding out the acid-producing organisms by others less virulent so far as dentine was concerned. Since then he had carried this point further and had found that in the treatment of dental caries a great deal could be done by proper attention to the bacteriological condition of given cases. Certain bacteria, particularly those of the mesentericus group, did not ferment carbohydrates to acid but produced a definite alkaline reaction. It was true that they produced proteolytic enzymes, but these were of no moment where no actual dentine was exposed. The method adopted was first of all to make a careful bacteriological examination of the mouth and determine the type of organism which was present in the largest numbers. After this there should be careful cleansing of all portions of the mouth with solutions particularly directed towards the inhibition of the growth of the special bacteria present. Cultivations of some innocuous form of organism were then made use of, the spores of the selected organism were sown freely about the mouth, and from time to time the number present was increased by the use of lotions containing a pure culture of the organism. There was no risk of digestive trouble following the use of organisms in this way, provided pure cultures of innocuous bacteria were made use of. Treatment for rampant caries in this way had given excellent results in his hands.

Mr. F. J. BENNETT (London) was much interested in several of the points raised by Mr. Goadby, particularly the translucent zone to be observed around carious cavities. This, he pointed out, the late Professor Miller thought was a vital manifestation, whilst he himself had always regarded it as caused by decalcification. The presence of yeasts in acute caries was of great importance, particularly in the face of a work by Harbin and Young published in the Proceedings of the Royal Society. The fermentation produced by yeasts from carbohydrates had been studied, and it had been found by the two observers mentioned that hexa-phosphoric acid increased carbohydrate fermentation of yeast extract both in quantity and rapidity, and it was possible, perhaps, that a combination of the extracts of these yeasts was more stimulated by the acid radical of tooth substance than by the basic substance. Another point which occurred to him was that clinical experience showed the beneficial effect of alcohol as a tooth preservative when used either as absolute alcohol, aromatic spirit of ammonia, or eau-de-cologne. Was this clinical experience supported by bacteriological knowledge?

Mr. P. SIDNEY SPOKES (London) was anxious to know whether sour milk was likely to produce dental caries, and, if so, whether the practice of giving alkaline solutions after taking lactic organisms in milk was a proper method of treatment, as he should like to know whether he had been following a proper line of treatment in so doing.

Mr. J. H. BADCOCK (London) expressed himself as particularly interested in the question of sweets. It was a common thing to be asked by parents if children could have sweets, and if they were told they must not have any sweets they generally disregarded the advice. What was a safe form of sweet, or at any rate the least deleterious form?

The PRESIDENT was interested in the yeasts, but owing to their size they would, of course, not penetrate the dentinal tubules but remain on the surface, and therefore be more related to surface cavities than to deep infection. Mr. Goadby seemed to regard the presence of a large number of bacteria as a pathological factor, but any person—and he spoke from experience—who made a cultivation of the mouth would find large numbers of organisms present, in fact teeming with bacteria, and he presumed Mr. Goadby would regard this as a pathological condition.

Mr. GOADBY, in reply, was of opinion that the phosphoric acid was probably of considerable importance to the development of yeasts in the mouth, more especially as the specimens he had shown of yeast cultivations flourished best on oleic acid agar. He was familiar with the work of Harbin and Young which Mr. Bennett had quoted. With regard to the sour milk, it was a very well known pathological fact that acid (lactic or acetic) when it reached a certain definite concentration inhibited the activity of the bacteria which produced it, and as dental caries was never a disease affecting the whole surface of the teeth at once, but only due to a localised production of acid, the best method of prevention was the use of acid lotions. If necessary some form of antiseptic such as carbolic should be combined with it. With regard to sweets, the harder and more crystalline sweets containing for the most part cane sugar were much the least deleterious so far as the teeth were concerned, and furthermore had the advantage of being freer from impurities. He pointed out that the discussion was only related to the prevention of the early stages of caries, but it was possible that yeasts, if they produced fermentation locally, could cause deep-seated caries by the acid products diffusing into the tooth. Very few mouths indeed were absolutely normal and free from disease, and the presence of large numbers of bacteria indicated that some pathological lesion existed, perhaps even an unclean denture.

Mr. BADCOCK contributed a paper on

The Need for the Correction of Malposition of the Teeth,

which was illustrated with a series of lantern slides of normal and irregular teeth. He said that the arrangement of teeth in the jaws was an important predisposing cause of caries. Contact points, not unlike the points of contact of two billiard balls, were found between normal teeth. Small facets appearing at the points of apposition, due to the movement of the teeth, the natural forward movement of the molars closed up the small spaces produced by normal friction and prevented the formation of spaces in which food lodged. Alteration in position due to irregularity destroyed this normal arrangement, and therefore easily allowed food masses to become impacted and to act as the starting-points of dental caries. Crowding should therefore be always treated by regulation of the position of the teeth in a normal arch. Two main methods were possible: (1) expansion of the crowded arch with an approximation to the normal arrangement; and (2) judicious extraction of teeth, followed if necessary with mechanical means for the adjustment of the remaining irregularity.

Dr. J. MILLIGAN (Barrow-in-Furness) agreed that the contact points were of great importance, and it was possible that the shape of teeth in different individuals was a matter of heredity. Was it possible that the shape of the teeth themselves had undergone degenerative changes since palæolithic man?

Mr. BENNETT thought that in the vast majority of ancient skulls the cusps of the teeth were worn away and practically no longer interdigitated; hence the cuspal locking of upper and lower teeth was not a matter of such prime importance.

Mr. BOOTH PEARSALL (London) had examined a large number of ancient skulls and had seen contact surfaces as large as 2 millimetres, but he thought the wearing away of the cusps was not important.

In reply, Mr. BADCOCK could not say how far the shape of the teeth, and therefore the interdental facets and points of contact, had undergone evolutionary changes. It was true that the cusps of teeth were much worn down in old skulls, leaving the surfaces almost smooth, and that the facets were also well defined. The wearing away of the cusps contributed to mutual cleansing.

Dr. HAROLD AUSTEN (London) read a paper on

The Correction of the Effects of Drugs taken as Medicines,

and said that there was a very widely spread and deeply seated popular belief that the taking of medicines was a common cause of the decay of the teeth. This belief was fostered, first, by the fact that certain drugs, such as iron, caused an obvious, though superficial, blackening; and, secondly, that decay of the teeth was found to be prevalent after such disturbances of the general health as were commonly treated by the administration of medicines. The belief that drugs injured the teeth appeared, however, to rest upon but slender foundations, the popular prejudice resting upon a basis of "post, ergo propter, hoc." Two classes of drugs would appear *prima facie* to be a potential source of caries: 1. Acids, administered internally or used as local applications to the fauces. Very dilute solutions of weak acids, if applied continuously, had been shown by experiment to appreciably destroy the enamel. But in the mouth acid medicines and gargles were not applied continuously, but very intermittently, and, in the case of fluids, mostly to the exposed surfaces, which were constantly washed by the saliva. All modern research tended to prove that the acids really injurious to the teeth were those generated *in situ*, in places which did not admit of natural cleansing, by the fermentation of the remains of carbohydrate foods. 2. Mercury. Mercurials when administered in infancy had been credited with the production of hypoplasia of the teeth, the so-called honeycombing. The evidence for this was far from convincing. If, however, the point were proved, it would be an instance of a medicine causing predisposition to decay, to which hypoplastic teeth were very liable. Mercurials administered in large doses had long been known to cause well-marked disturbances in the associated tissues, the gums, and even bone. It was conceivable that mercury acting in this way, where there had been actual ulceration and permanent loss of tissue, might cause a predisposition to caries at the necks of the teeth. Lead, bismuth, silver, or copper, being drugs partly excreted by the oral mucous membrane, had been credited with occasionally producing similar effects to mercury in septic mouths. The only treatment for the correction of the effects of these drugs, if any was required, seemed to be to maintain complete cleanliness of the mouth, and to neutralise the effects of acids taken by the immediate use of an alkaline mouth-wash.

Mr. SEWELL (London) said that in the County Council schools little or no evidence was forthcoming that mercurials caused hypoplasia, the incidence of which bore no relation to the fact that a large number of these children were constantly dosed with mercurials in their early life.

Mr. GOADBY remarked that the teeth of persons engaged in lead works showed no predisposition to dental caries, and also that the usual acid mixtures prescribed were no more acid than a mouth lotion might be.

Dr. SIM WALLACE (London) said that medicine made up with malt extract was a common preparation, that many medicines were also put up with chocolate, and in these cases the contained drug was not related to caries, but the vehicle.

Dr. AUSTEN, in reply, said that he was very glad that no out-of-the-way drug was known to any of the speakers which especially predisposed to tooth decay. So far as his experience went, no drug could be properly blamed as the cause of dental caries. Malt extract was a food, and was generally prescribed as such.

The PRESIDENT contributed the concluding paper to the discussion on

The Reasons for Susceptibility and Natural Immunity to Dental Caries.

He observed that previous speakers in the earlier part of the discussion thought that the problem of caries was a very simple one; in fact, one speaker regretted that any other issue was considered than that of food, notwithstanding the fact that a considerable number of important secondary issues were undoubtedly concerned, for in dental caries, just as in other pathological questions, the issue was never a simple or a direct one. Alexins in the saliva might perhaps be concerned in the question of immunity. Miller had experimented in this direction, but found that in saliva from immune and susceptible people exactly the same amount of lactic acid could be produced. Black, on the other hand, had made long research into the differences of hard and soft dentine, and had come to the conclusion that there was no difference so far as dental caries was concerned. Rosé, however, pointed out that enamel was the first affected, and that when enamel was examined, both by combustion and by the agency of polarised light, distinct differences were to be found in its translucency and in its ash. Rosé also was of the opinion that metabolic changes took place in dentine during life, but to a limited extent. Further, different enamels exhibited different actions and reactions when treated with weak acids, and this difference, pointed out by Mr. Stanley Mummery, might explain some of the differences in the attack of individual teeth. Sanarelli's experiments relating to the antiseptic condition of the saliva were of no value, as the saliva was filtered and no pabulum was present for the growth of the organisms. Saliva did, however, contain diastasic ferment, the salivary corpuscles possessed the power of positive chemiotaxis towards free bacteria, and in addition the mechanical action of saliva was very large. Recent researches with regard to the action of sulpho-cyanide threw no further light on the action of that compound with regard to the inhibition of caries or the growth of bacteria. Different animals varied considerably in their salivary secretions. If the saliva of a horse were mixed with sugar very little change took place, although in a number of horses definite dental caries was to be found. The reaction most suitable for the development of acid-forming organisms was an alkaline one, and practically no caries took place where a slightly acid reaction of the mouth was present. Retention points where food stagnated between teeth, particularly irregularities of the dental arch, allowed the accumulation of food into which antiseptics could not penetrate, and no amount of mouth antiseptic was of any value if retained food was present. Variations in the composition of saliva occurred in individuals; occasionally, particularly in diabetes, glycogen was to be found. Michaels had studied the presence of glycogen and had come to the conclusion that its presence was more frequent than was generally supposed, and that it might have a distinct bearing on the question of immunity to caries. Kirk in some recent work on the mucin of saliva pointed out that mucin was an alkaline substance precipitated by acids, and that thin, limpid saliva was generally acid in reaction, whereas the thickish mucoid saliva was alkaline. Lactic acid would precipitate mucin from this alkaline saliva, and it was possible to form plaques and deposits on a tooth by precipitation of mucin with lactic acid. Local precipitation could occur. As a solvent of this precipitated mucin lime-water had been often used with considerable success. With regard to heredity, it was very difficult to say how far such influence as natural selection had any effect in predisposing to dental caries, but he was inclined to think that considerable deficiencies and variations had occurred in the immunity of races of men, and that at the present time artificial selection was not sufficiently in force to correct these variations.

Mr. GOADBY, in discussing the President's paper, was glad to find that he was in entire agreement with Mr. Mummery, but he would like to point out that Sanarelli's experiments, although, in the first place, he claimed an antiseptic action for saliva which was not tenable, yet showed a certain quantitative bactericidal effect, and that if to a given quantity of saliva a loopful of bacteria were added distinct diminution in the numbers could be

observed in the first 48 hours, after which the numbers again increased until they were innumerable. He was in entire accord that a very large number of instances existed in which the mere question of food, either hard or soft, could not explain the immunity to caries; in many instances in his own experience children of the same family showed marked variations in immunity, although the food eaten by such a family was identical. A large number of problems were waiting solution with regard to the composition of the various bodies in the saliva itself, and it was to be hoped that some workers would turn their attention in this direction.

Dr. SIM WALLACE also joined in the discussion, and the PRESIDENT, in a brief reply, pointed out that immunity certainly existed in individual cases, and quoted a special case in which Professor Miller and himself had been particularly interested, where, notwithstanding the fact that no great care of the teeth was taken, and all ordinary food had been made use of, yet no dental caries appeared in a man of 50 years of age. There was something more in such a case than food composition to account for very definite immunity.

OPHTHALMOLOGY.

THURSDAY, JULY 28TH.

President, Mr. CHARLES HIGGENS (London).

The meeting commenced with a series of demonstrations, which included Methods of Testing for Colour Blindness, by Dr. F. W. EDRIDGE-GREEN (Hendon); New Operation for the Production of Filtration Cicatrix in Chronic Glaucoma, by Mr. H. HERBERT (Nottingham); Use of New Registering Form of Diaphragm Test for Measuring Binocular Vision, by Mr. N. BISHOP-HARMAN (London); and Use of Carbon-Dioxide Snow in the Treatment of Trachoma, by Dr. E. R. MORTON (London).

Mr. W. T. HOLMES SPICER and Mr. STEPHEN MAYOU (London) then opened a discussion on

The More Chronic Forms of Anterior Uveal Inflammation: (a) Extra-ocular Manifestations; (b) Intra-ocular Manifestations.

Mr. Spicer, in speaking on (*a*), said that he would exclude the evanescent type of episcleritis described by Fuchs and pustules beginning in the conjunctiva which were local affections, also gumma of the ciliary region spreading externally. That left him scleritis and episcleritis. Text-books distinguished between these, but there was no essential difference save the variation in incidence with the time of life and the depth of penetration of the inflammation. So far as their connexion with uveitis was concerned, that depended upon the depth and intensity of the inflammation. He found two types of scleral nodules—one hard and raised, which on incision proved to be mostly solid, though occasionally a bead of pus was found within. The second type presented a boggy undermined condition; the surface was blue, soft, and yielding. Some cases began as a vesicular eruption. Considering the sex and age incidence, he found that of 55 cases 15, or 28 per cent., were males, and 40, or 72 per cent., females; the difference was striking. As to the liability of the eyes to inflammation, the right appeared most frequently affected, but he thought there was little in the observation. Of ages: the decades of maximum incidence proved to be between 20 and 40 years; but in considering this it had to be borne in mind that the duration of the cases was long—it might extend to 15 years. The features of corneal invasion were of interest; he noted the occurrence of crescentic areas of infiltration, separated from the patch of scleritis by a band of clear cornea; these crescents had their concavity towards the limbus. When there were frequent attacks of scleritis in different parts of the eye a complete ring of these small crescents might result simulating arcus senilis. He thought they were due to obstructed lymph circulation in the cornea; he had observed similar crescents capping fascicular ulcers. The invasion of the inner parts of the eye was due to extension of the poison: cyclitis, iritis, and opacities of the cornea were evidence of the severity of the inflammation. Coming to etiology, he found evidence of rheumatism in 24 per cent. of cases, and a definite absence of it in 26 per cent. Indigestion and constipation and pyorrhœa alveolaris were exceedingly common, but were these not common in most hospital patients of this age and sex? The preponderance of females suggested the possibility of disease peculiar to female organs, but the most careful examination of many cases brought no evidence of this. The most noticeable point was that the subjects were for the most part young women of sedentary habits—milliners, dressmakers, and the like. Dealing with pathological features, sections of nodules showed no evidence of tubercle; cultures from these cases were most often sterile; in one where the staphylococcus aureus was isolated a vaccine was prepared but it proved useless. Von Pirquet's reaction was tried four times; two were positive and two negative. In the positive cases tuberculin injections were made; both recovered, though no striking changes in the scleritis appeared after the injections. Three cases were examined for syphilis by the Wassermann test and all were negative. As regards treatment, he had excised nodules in nine cases with varying results; on the whole he thought well of it. He suggested incising the patch and touching it with carbolic acid. Injections of cyanide of mercury had proved useless. Iridectomy had been done for secondary causes; in one case the scleritis recurred four months later; in another not for several years. Hot vapour baths were very good during attacks, but did not prevent recurrence. It was too early to estimate the value of ionisation; he found the reaction severe, it increased the severity of the attack; but one case appeared to improve. He was not inclined to recommend it, for it was too painful. Salicylic ionisation seemed much more pleasant. In his opinion the disease was toxic—i.e., not due to a local organism, and he based this opinion upon the absence of organisms in the nodules. He thought it was a local thrombosis, something like a chilblain, but by that he did not mean a cold weather disease, nor was warmth a great factor in relief. It was a toxic thrombosis, and possibly the manifestation of tubercle in other parts of the body, yet it was not confined to tubercle. At present they had no means of distinguishing these toxins.

Mr. MAYOU, dealing with (*b*), said he purposed considering the bacteriological aspect. He had investigated 38 cases by the best methods known to them. It appeared that there were three main causes of infection—the tubercle bacillus, staphylococcus, and the spirochæta pallida. Of 30 cases in which there was good evidence of the cause of the inflammation 15 proved tuberculous, 10 staphylococcal, and 5 syphilitic. Apart from wounds of the globe the infection must be by the blood stream, and therefore from some other focus elsewhere in the body. That organisms cause uveitis had been demonstrated, but there was no evidence of toxins producing similar effects. Tuberculous affections of the lungs and glands, pus infections of teeth, boils, leucorrhœa, and possibly disorders of the gut were common primary foci. Chronic middle-ear disease had also been held responsible. He looked on these affections as a chronic pyæmia, and held that this accounted for the cachexia so common. All his septic cases had been in females. Some clinical indications of the causal agent could be derived from the nature of the deposit on the back of the cornea—keratitis punctata; in staphylococcal and syphilitic cases it usually consisted of a cloud of fine dots, whilst in tubercle the spots were large like "mutton fat"; this was probably due to differences in agglutination. The changes in the iris were essentially atrophic, following vascular sclerosis. The occurrence of cataract secondary to the inflammation was probably due to toxic effects upon the lens epithelium, and loss of protection from aqueous absorption. Choroiditis when anterior was probably due to spread of the disease, but isolated patches posteriorly might be separate foci. The increase in tension sometimes noted was likely to be due to two causes: altered secretions and altered osmosis through the diseased hyaloid. Low tension he found in one case due to the shrinkage of the vitreous. Iritis adhesions were less common with staphylococcal infections. Vitreous opacities were slight in tubercle, always present in syphilis, and most marked in staphylococcal cases. The determination rested, however, on specific tests. Von Pirquet's reaction was of doubtful value. Of the Wassermann reaction he had little experience as yet. The local reaction of the eye following injections of toxin into the blood was most valuable; in 48 hours there was increased ciliary injection and vitreous opacities, the patient noticed the loss of vision; choroidal patches became œdematous. Bacteriological examination of the aqueous was the only certain proof. Smear preparations were no use. Inoculation of the aqueous into animals would alone give positive results in tubercle.

Inoculation of the aqueous on to blood serum was sufficient in staphylococcal cases. As regards treatment, paracentesis had been established as a most beneficial measure; it allowed the site of the lesion to be drained and then flooded with blood serum containing protective bodies. He did not hesitate to repeat the operation. Vaccine treatment he found of great value, and wherever possible the vaccine was prepared from the patient's own organism.

The PRESIDENT said it did not appear that they had made much advance as regards treatment, with the exception of the tentative use of vaccines. He confirmed Mr. Spicer's observations of the peculiar corneal marking left after scleritis. In his experience irido-cyclitis and kerato-iritis were much more common in young women and in hospital cases. In six recent private cases, four had given a positive Wassermann reaction, and one other he thought syphilitic.

Mr. A. W. ORMOND (London) said the possible causes of irido-cyclitis were almost numberless: syphilis (acquired and inherited), gonorrhœa, rheumatism, tubercle, malaria, leprosy, dental caries, and Bright's disease were well-recognised causes. In other cases the cause was not discoverable. Ramsey had suggested that faulty metabolism was at the basis of them, and he thought auto-intoxication from the gut might have a determining influence. It was, however, more likely that the affection was due to organisms acting directly than to toxins acting from a distant focus. In this connexion the examination of the blood was important. In three recent cases of sympathetic ophthalmia this had been done by Dr. C. Price-Jones. There was a tremendous increase in the percentage of mononuclear leucocytes; it reached 16 to 20 per cent. instead of the average 2 to 4 per cent. The change suggested a protozoal and not a bacillary infection. In treatment of irido-cyclitis he strongly urged paracentesis and irrigation of the anterior chamber with normal saline solution.

Dr. W. H. BRAILEY (Brighton) quoted a case of uniocular irido-cyclitis which was probably due to the sting of an insect on the side of the nose. He commented on the difficulty in obtaining reliable evidences of rheumatism and on the fallacies of statistics as indicative of the prevalence of any chronic disorder in males and females owing to the fact that men did not trouble so much about these conditions.

Dr. R. A. REEVE (Toronto) commented upon a case of homolateral irido-cyclitis consequent on follicular tonsillitis. First one side of the throat was affected and the corresponding eye; later, the other side of the throat and the other eye. He had frequently noted correspondence of tonsillar affections with the eye inflammation.

Mr. A. HILL GRIFFITH (Manchester) said that when using the cautery in cases of scleritis he had found pus in some of the nodules. He thought solid nodules were rare. Commenting on the peculiar corneal scars left in scleritis, he asked if they were analogous to the white corneal lines sometimes seen in dermoid of the limbus. In some cases the interval between the inflammation of the two eyes extended to many years. He noted that Mr. Mayou accepted the explanation of the occurrence of keratitis with solitary patches of choroiditis he had put forward some 23 years ago.

Dr. G. A. BERRY (Edinburgh) said the proof of toxic origins of inflammation was much more difficult than the detection of the presence of organisms, and this should have some influence in our judgment of difficult cases. He thought that tuberculous irido-cyclitis had many features in common with sympathetic ophthalmia; the latter might almost be analogous to a malignant form of the former. As regards staphylococcal infections, he was strongly of the opinion that the soil in which these were found as apparently causal agents was prepared by tuberculous infections elsewhere. He agreed in the preponderance of cases in women, but he would put the percentage as high as 90 per cent.

Mr. BISHOP HARMAN (London) said that with the aid of Dr. Bernstein he had investigated a large number of eye cases by the Wassermann reaction. He was much impressed by its reliability. Citing the cases of two young women, the remnants of a large family, both suffered from forms of chronic uveitis—one had scleritis during 20 years, the other posterior inflammation. With the introduction of the Wassermann test they were each examined twice and gave positive reactions. Another woman with granuloma of each iris and the "mutton fat" variety of keratitis punctata had been thought to be tuberculous, but the Wassermann reaction was positive, and mercurial treatment proved much more beneficial than tonics. It must be borne in mind, however, that the test only signified a general taint; it did not prove that a given lesion was syphilitic; for this the test must be standardised. His experience of paracentesis was most happy, and in this connexion it was of great interest to read the ancient experiences of Wardrop.

Dr. CECIL E. SHAW (Belfast) expressed his approval of Mr. Spicer's view that many of the cases of sclero-keratitis were toxic. He had been struck with the number of patients who seemed otherwise healthy, but who led sedentary lives without sufficient open-air exercise, e.g., domestic servants. As regards infection in uveal inflammation, he thought the nose should be carefully examined, as it was probably a frequent source of septic infection. Mr. Mayou had referred to boils as primary foci, but he thought both boils and the eye infections were secondary.

Mr. SPICER and Mr. MAYOU replied.

Dr. A. HUGH THOMPSON (London) read a paper on

The Operative Treatment of High Myopia.

He discussed operative procedure, the degree of myopia justifying the operation, and the age at which it was most favourable. He did not consider that operation checked the progress of myopia, so that it might be done for a less degree of myopia in the young than in the old. Much choroidal degeneration contra-indicated the operation. The conditions of the second eye had to be taken into account; there was no use operating if the other was emmetropic, and they could not take the risk if the other was seriously diseased. He then gave the visual and after-history of 20 eyes he had operated upon. These required altogether 65 operations. Distant vision was improved in 17 cases; in 10 it was better without a glass than it had been before with glasses. Of the three failures, one developed a thick cyclitic membrane, one was a brilliant success for five years and then had grave cyclitis, and the third had a macular hæmorrhage eight months after operation. He did not think that the operation caused any serious increase of liability to detachment of the retina. The liability was perhaps enhanced if vitreous opacities were present before operation or if much vitreous was lost at the operation. If the operation had a bad influence he would expect it to be exerted within a year of its performance.

Mr. CHARLES WRAY (London) said he found that recent statistics confirmed results he published some years ago, that the removal of the lens did not stop the progress of the myopia. He thought the operation seriously increased the risks of blindness, and cited three cases of young subjects whom he had recently seen quite blind.

Mr. GRIFFITH said he had operated upon from 40 to 50 cases, and in no case had the eye been lost. He did free discission followed by suction. He never attempted the operation unless No. 1 Jaeger test-type could be deciphered. He did not think the operation induced detachment of the retina unless acute cyclitis followed, and this might occur in any extraction, infantile or senile.

Major H. A. J. GIDNEY, I.M.S., having said his experience of the operation was satisfactory, Dr. THOMPSON replied.

Mr. ARTHUR H. BENSON (Dublin) read a paper on

The Method of Enlarging Certain Forms of Contracted Socket.

He entered a plea for the more extended use of mucous membrane excised from the mouth as grafts, instead of skin or epithelial flaps, in plastic operations. The floor of a shallow socket was split longitudinally, and the gap left in the conjunctiva lined with a flap removed from the inside of the lip. The flap was sutured into place, and the socket packed with pellets of cotton wadding impregnated with xeroform, so as to put the lids on the stretch. It was then bandaged firmly and left for two or three days. He said that mucous grafts were extraordinarily tolerant of removal and transplantation, so that no elaborate precautions were necessary as with skin grafts, and further, the membrane of the lips, being educated to withstand the pressure of the teeth, would tolerate the pressure of a shell.

Lieutenant-Colonel L. J. PISANI, I.M.S., read a paper on

The Conditions which may Account for the Greater Prevalence of Cataract in India.

From an examination of the statistics of cataract operations performed in Government and State institutions, it appeared that cataract was twice as prevalent in the Northern

Provinces as it was in the Lower India and Burma provinces. Comparing certain provinces the difference was intensified; the incidence was four times greater in the Northern Provinces. Next he examined the climatic conditions of these provinces and showed that they were marked by intense light and glare, both from direct sunlight and from reflection from the bare soil, and also to great dry heat. Then he discussed the influences of intense light and the influence of heat in the production of cataract. So far as experimental work had been conclusive, heat effect seemed more likely to cause cataract than light. The food factor he thought of little influence, for the whole of the common people of India lived on similar food. The ultra-violet rays did not seem to exert a serious influence, seeing that cataract was less prevalent in mountainous regions where the rays most abound. It was possible that one form of cataract might be produced by different causes, but that in any case a senile lens was a necessary condition. It was at the time of failure of accommodation that the liability was greatest. On the whole, he thought the prevalence of cataract in India was mainly attributable to exposure to prolonged intense dry heat, which altered the aqueous humour and secondarily the lens.

Mr. WRAY said the relation of humidity to cataract was in confirmation of his observations that cataract in England was most frequent in subnormal water drinkers.

Major GIDNEY thought the essential factor in the production of cataract was premature senility; climatic influences he thought of little consequence. He said it was not just to suppose cataract incidence agreed with official statistics of cataract extraction, because they took no account of the enormous number of cataracts that were operated upon by quacks.

Mr. ANGUS MACGILLIVRAY (Dundee) said he had a considerable knowledge of Anglo-Indians engaged in the jute trade. He did not find their residence in India increased their liability to cataract.

Colonel PISANI said that the jute trade was carried on in the most moist part of India where cataract was least prevalent.

Dr. SHAW said that reference should be made to the recent report of the Belgian Ophthalmological Society into the causes of accidental injuries to the eyes by electricity. There was an admirable summary of the influence of extreme light effects, and there appeared a large number of cataract cases.

Mr. A. F. MACCALLAN, chief ophthalmic inspector in Egypt, read a paper on

Five Months' Work in Luxor in 1910,

in which he sketched the arrangement now existing for the treatment of eye disease in Egypt, and gave some statistics of the variety and incidence of disease. One of the branches of their work was the inspection and treatment of school children in certain towns. 96 per cent. suffered from trachoma. Three years' work in one school had reduced the proportion to 43 per cent. Beside combating trachoma, much work had been done in cataract extractions and in the relief of glaucoma.

OTOLOGY.

THURSDAY, JULY 28TH.

President, Dr. EDWARD LAW (London).

Dr. ROBERT BÁRÁNY (Vienna) and Mr. C. E. WEST (London) opened a discussion on

The Diagnosis and Treatment of Infective Labyrinthitis.

Dr. BÁRÁNY distinguished the following forms of the disease: (1) Acute purulent labyrinthitis; (2) latent purulent labyrinthitis; (3) fistula of the labyrinth with intact membranous labyrinth (circumscribed labyrinthitis); (4) fistula of the labyrinth with slight lesion of the membranous labyrinth; (5) fistula of the labyrinth with severe lesion of the membranous labyrinth; and (6) serous labyrinthitis. The differential diagnosis between those diseases was made possible by investigation of the condition of the semicircular canals, the methods of which were partly originated, partly worked out, by Dr. Bárány. The most important sign of the diseases of the semicircular canals was the spontaneous vestibular nystagmus, which might be present either continuously (acute labyrinthitis) or only during attacks (circumscribed labyrinthitis). The investigation into the function of the semicircular canals consisted in the experimental irritation of the canals by means of (1) turning, (2) rapid head movements, (3) syringing with cold and hot water, (4) galvanisation, and (5) compression and aspiration of the air in the meatus. All these different irritations produced quite definite forms of vestibular nystagmus, which must be observed carefully. Also intracranial diseases produced vestibular nystagmus, especially those of the posterior fossa (cerebellar abscess, meningitis). Dr. Bárány gave the differential diagnosis between the diseases of the labyrinth and the intracranial complications which often accompanied the labyrinth trouble. That diagnosis was based upon the observation of the spontaneous nystagmus and the exact examination of the irritability of the semicircular canals.

Mr. WEST said that infections of the labyrinth might be either pyogenic or non-pyogenic; the former constituted the main subject of the paper. Pyogenic infection might be either diffuse or localised to a portion of the labyrinth; that part might be restricted to the labyrinthine wall. Diffuse infection might be either acute or chronic; localised infection was always chronic. Necrosis of the labyrinthine capsule might take place in either acute or chronic conditions. The dangers and incapacities caused by infective labyrinthitis; the treatment of infective labyrinthitis chiefly operative by the necessity of the case; the aims of operative treatment; the treatment of chronic local infections by the radical mastoid operation and curettage; the operative treatment of the diffuse infections, whether acute or chronic, by drainage of the labyrinth, were all dealt with. The vestibulotomies, inferior and double, technique and after-treatment; tuberculous labyrinthitis; necrosis of the labyrinthine capsule; non-pyogenic infections of the labyrinth, syphilis, mumps; and non-suppurative labyrinthitis in otitis media were considered and discussed.

Mr. SYDNEY R. SCOTT (London) gave a demonstration of nystagmus in a case of labyrinthine disease by means of kinematographic photographs.

Dr. ALBERT A. GRAY (Glasgow) inquired whether tinnitus continued after the destruction of the cochlea on both sides; if it did, then it pointed to a central origin and nerve change.

Mr. DAN MACKENZIE (London) considered that spontaneous nystagmus was not to be relied upon alone as a localising symptom. In this respect nystagmus was on a level with vertigo.

Dr. DUNDAS GRANT (London) cited the adage that it was difficult for an old dog to learn new tricks. Whilst he was desirous of learning the most recent methods of detecting labyrinthine disease, he was curious as to the cause of the frequency of the disease, which was rare, comparatively speaking, in his own experience.

Mr. HUNTER TOD (London) had missed in the opening papers by Dr. Bárány and Mr. West what he wanted most—namely, the indications for operation on the labyrinth. He still wondered whether the cases of suppurative labyrinthitis were so numerous as recent publications would lead one to believe, and he could not help feeling from his own personal experience that in many of these cases suppuration did not exist, although the diagnosis might have been suggested by the tests applied. In his own hospital he or his assistants had operated upon 302 cases of mastoid disease during the three years ending 1909, including amongst these acute and chronic conditions, and also intracranial complications. Of the fatal cases, on which a necropsy had been made, suppuration of the internal ear was found in only one, and this was noted at the time of operation. The reasonable deduction, therefore, was that even if suppurative disease of the internal ear in some of these cases had not been recognised, nevertheless they had recovered with the mastoid operation, apart from any labyrinthine operation being performed, or, on the other hand, suppurative disease of the internal ear had never existed. In either case the mortality from internal ear suppuration seemed to be very small indeed. Mr. Tod only cited what he had been told with regard to the necropsies.

Dr. JOBSON HORNE (London) asked Mr. West what had been the ratio of the number of operations for labyrinthine suppuration to the total number of radical mastoid operations in his clinic.

The PRESIDENT thanked the openers for their papers, and Dr. BÁRÁNY and Mr. WEST replied.

Mr. WEST, in his reply, said that he was not able to answer Dr. Gray. He doubted whether the tympanic plexus was not already destroyed by chronic suppuration long before operation. The indications for operation on the labyrinth he considered to be quite clear; first, the presence of acute infective labyrinthitis, the diagnosis of which Dr. Bárány's paper had put clearly; secondly, the diagnosis of a defunct labyrinth, confirmed by the discovery at operation of a fistula through the ampullæ or through the inner tympanic wall, or in the absence of previous diagnosis by default of proper testing such discovery of undoubted aperture into the vestibule; thirdly, the continuance of disabling vertigo in fistula of the external semicircular canal after a radical mastoid operation and local curettage had failed to give relief. Such cases were rare. In reply to Dr. Jobson Horne, he had no recent statistics ready as to the ratio of labyrinthine operations to the total number of radical mastoid operations in his own clinic, but he had found that about 1 in 10 of his mastoid operations required labyrinthine operation.

STATE MEDICINE.

THURSDAY, JULY 28TH.

President, The Right Hon. Lord ILKESTON (London).

Dr. JOHN ROBERTSON (Birmingham) read a paper on

Town Planning in Relation to Public Health,

in which he pointed out that the necessity for town planning had largely arisen from the enormous growth of towns in which the structure and sanitation of individual dwellings were alone controlled. He did not think the Housing, Town Planning, &c., Act could be regarded as a contribution to the legislative powers which were needed to carry out efficient town planning. One of the principal objects to be aimed at was the reduction of the number of houses per acre, and this could largely be done by reducing the cost of roads. Non-traffic roads should be narrow and could be arranged in a healthful manner, while traffic roads should be constructed largely at the public expense. The town planner should set aside land for playing fields and for purposes of recreation, and should allot special areas at a cheap rate to manufacturers and for railway and canal purposes. The dust and smoke of factories could thus be removed from the residential areas.

Dr. E. W. HOPE (Liverpool) sent a paper, which was read by the Honorary Secretary of the section, in which he stated that no more conspicuous example of the mischief resulting from the rapid development of a great city could be instanced than that of the city of Liverpool. In recent years the provisions of the Housing Acts had been freely made use of there, and large areas of slums had been swept away and replaced by municipal dwellings, connected with which were ample open spaces and recreation grounds. Under the provisions of a local Act the outlying portions of Liverpool had received special treatment.[1] A main road 108 feet wide and completely encircling the city had been constructed. From this there were radiating minor roads which were much narrower. Excellent houses had been erected and the suburbs had been opened up and dealt with on rational lines. Private landowners had been encouraged to develop their estates in a similar manner, and there was every probability of a garden city being created on the estate of the Marquis of Salisbury.

Mr. T. C. HORSFALL (Manchester) said that as Mr. John Burns in the Housing, Town Planning, &c., Act had taken away with one hand that which he had given with the other, there must inevitably be at an early date an amending Act, for very little could be done under the provisions of the Act or under the Regulations which had been made by the Local Government Board. The evil of continental towns was the crowding of people on area, and this had the effect of increasing the value of land, so that landowners and houseowners would, no doubt, endeavour in any amending Act to procure conditions of broad streets with large houses on either side. Manufacturing towns, he maintained, were repulsive, but as the average English house was a better type than those to be found in other countries, what was wrong in our towns was the town itself and not the house. He agreed with Dr. Robertson that a self-respecting race could not be reared in conditions where squalor existed, and that we must bring more of nature into our towns. The Hampstead suburb had solved the difficulty as to how best to provide sufficient air space by a system of broad traffic streets with narrow residential streets leading out of them. Every unnecessary inch of macadam was an evil, and bad results had been brought about by the mania for unnecessarily wide streets. Though the dwelling problem was a most appalling one, he considered that the English workman lived under conditions which were incomparably better than those of the German workman, with the consequent result that the death-rate from all causes and from phthisis, and the infantile mortality-rate were considerably higher in Germany than in this country. He placed before the meeting plans of typical German houses, and stated that the German building regulations were very strict, requiring exceptionally thick walls and fire-proof staircases necessitated by the system of building dwellings in flats.

Mr. F. E. FREMANTLE (Hertfordshire) pointed out that the only entire scheme of town planning in this country was the first garden city at Letchworth, which was arranged from the first on a pre-arranged plan. The distinction between a garden city and a garden suburb was absolute, the latter arranging for the housing of a single section of the residential population and dealing with existing conditions, whereas the former was entirely new from the beginning and arranged for a self-contained population, the industries, shops, banks, public buildings, and residential houses being each allotted their appropriate positions. After describing the particular planning of Letchworth, he gave an account of the Valentine's estate at Ilford of some 44 acres which was about to be developed as a garden suburb on correct financial lines. He appealed to medical officers of health to take up with vigour the question of securing similar suburbs in their respective districts with a view to the prevention of slums and the securing of houses which would be satisfactory to the health of the people in their inter-relations, as under the building by-laws they must now be in their individual structure.

Dr. GEORGE REID (Staffordshire) read a paper upon

The Administrative Control of Ophthalmia Neonatorum,

in which he stated that no arguments were needed to emphasise the importance of providing machinery for dealing with that disease, which it had been estimated was the cause of at least one-third of the cases of permanent blindness in this country. After referring to the scheme which had been in operation in the Staffordshire Potteries for some eight or nine months, he sketched the procedure necessary to make that or any similar scheme successful. Compulsory notification of the disease was requisite, and this could be obtained by securing the addition of the disease to the list of notifiable diseases contained in the Infectious Disease (Notification) Act. If a notification were received from a midwife the medical officer of health should cause inquiry to be made through a health visitor into the circumstances, and should take steps to ensure that medical help should be obtained, informing the medical man that if required the sanitary authority would provide nurses for the case. If a case were notified by a medical man he should be asked if he desired that nurses should be supplied. All the authorities in whose districts in the Potteries the scheme had been adopted had assumed the responsibility of providing and paying for the nursing assistance needful, and in one district provision had been made for defraying the cost of medical treatment, a fee of 1 guinea being paid per case. Dr. Reid pointed out that the number of cases of the disease would undoubtedly diminish year by year as the ancient type of midwife gradually became extinct and was replaced by properly trained women, but that as this weeding-out process would take time, and meanwhile the damage being done was serious, it was desirable that some such scheme as that in force in Staffordshire should be adopted in the country generally.

Dr. N. BISHOP HARMAN (London) considered that on the occurrence of a case of purulent conjunctivitis in a newly-born infant the medical man in charge should be required not only to notify it to the medical officer of health but also to send to the public bacteriological laboratory for microscopical examination two film preparations of the pus on glass slips. The bacteriological diagnosis of such cases was of the first importance. By film preparations stained with methyl blue and by Gram's method the distinction of inflammation due to the

[1] THE LANCET, June 18th, 1910, p. 1718, and July 2nd, 1910, p. 60.

micrococcus of Neisser and of inflammation due to other organisms such as staphylococci and the Koch-Weeks bacillus could be made with little short of certainty. The necessity for this distinction was evidenced by the fact that risk to the sight of the infant was only to be feared when the micrococcus of Neisser was the infective agent. The medical officer of health should have at his call some surgeon capable of giving expert advice in the care of such cases, and as there might be certain difficulties connected with the calling in of a general practitioner he suggested that the school medical officer might be made use of for this purpose. The occasional change from school work would be a welcome relief to him, and he should be required to make himself thoroughly conversant with the disease and its treatment. Nursing being of the highest importance, he was of opinion that, where possible, the cases should be treated at some institution rather than at home. For the most part they occurred in the homes of the very poor, where there was not only the difficulty of housing nurses and of obtaining ordinary domestic appliances, but there was a liability of re-infection during the lying-in period of the mother. He deemed it of the greatest importance that the number of cases occurring should be collected and published annually, so that there could be obtained a correct idea of the incidence of the disease and of the effectiveness of the measures adopted in connexion with it.

Mr. HERBERT H. FOLKER (Hanley) said that as the success of any measures towards the extermination of ophthalmia neonatorum depended upon early treatment it was absolutely essential that the disease should be compulsorily notifiable. There must also be a complete machinery for dealing with those cases which were notified. On receipt of a notification certificate a lady inspector should be sent to the house (where the case was in charge of a midwife) in order that the necessary arrangements might be made for medical help and nurses. These arrangements included the provision at the cost of the municipality of two nurses, one for day duty, the other for night. When the house was of such a character as to be detrimental to the recovery of the infant a cottage home with accommodation for about four patients should be provided to which the mother and her child could be removed. The Liverpool corporation had adopted the latter course with wonderful success. In the Staffordshire Pottery Towns, now the federated borough of Stoke-upon-Trent, there had been during the space of nine months 78 cases of the disease reported, and two had resulted in total blindness. Wherever nurses or medical aid had been required, they had been supplied at an average cost to the local authority of £3 1*s.* 9*d.* per case. He maintained that if all these cases had been left to be dealt with by a midwife the percentage of cases of blindness would have been very considerably greater. As the average cost of educating a blind child was about £490, the saving to the community was at once apparent. He considered that when a mother and her child were removed to a cottage home the patient should continue under the charge of the medical attendant and not under that of the health authority.

Dr. H. COOPER PATTIN (Norwich) presumed that Mr. Bishop Harman was not a medical officer of health, though he instructed them benevolently in the elements of their calling. The notification of ophthalmia neonatorum was obligatory in Norwich, and every case notified was at once investigated by a health visitor who was also a trained nurse and capable not only of giving sage advice, but also of affording skilled assistance. He pointed out that medical officers of health would be enabled more quickly to effect the removal of mother and child from unsuitable surroundings to a suitable hospital when all the forms of medical aid were coördinated in and made a part of the public health department of a community. Mr. Bishop Harman considered the disease with the obsession of a specialist, whereas the medical officer of health gave consideration in addition to the interests of the public, including its purse. Mr. Folker's observations on the economics of the question were very pertinent, and Dr. Pattin suggested that when medical officers of health reported to their authorities on the question they should not overlook that aspect as it had been placed before them by Mr. Folker.

Dr. J. C. MCWALTER (Dublin) maintained that ophthalmia neonatorum ought never to occur. If it did, there was a *primâ facie* case that there had been negligence on the part of the nurse or doctor in attendance. The duty of preventing such cases should be insisted upon, and when they did occur the general practitioner ought not to be relieved of his duty to treat them. There was a danger that the public would soon cease to attend to the warnings of doctors if the only remedy suggested was the appointment of more specialists. One distinguished oculist had told them that they should take a smear preparation of a suspected case, whilst another specialist had stated that unless a case were treated within 12 hours no good could be done, so that if one waited for the report of the bacteriologist it would be too late to take effective action.

Mr. E. H. T. NASH (Wimbledon) criticised the figures given by Mr. Folker with regard to the amount saved to the community, and called attention to the previous statement that 76 of the 78 cases notified in the Potteries were saved from blindness. That statement had been taken to mean that every case notified would have become blind but for the action resulting from notification, which was far from being correct.

A paper by Dr. JAMES NIVEN (Manchester) was read by the Honorary Secretary of the section upon

Summer Diarrhœa in Relation to House Flies,

in which the subject was dealt with as it occurred in Manchester. The advantages of this course were, in Dr. Niven's opinion, that the meteorological and telluric conditions were nearly the same throughout, and differences of rainfall as between one locality and another could be left out of account. Moreover, the fatality from diarrhœa being much influenced by social conditions it was almost impossible for one observer to form a judgment on the extent to which social conditions were at work in different large centres; but it was not nearly so difficult to form a correct judgment on this factor for one locality; and lastly, sanitary conditions could be better gauged for one area. The annual increase of diarrhœa in certain months of the year indicated a rapid transmission in some manner from person to person, and however the disease was kept alive from year to year it was certain that it remained at a low level of fatality from January until the fly season set in, when the fatality began to ascend rapidly, and after a brief period of consummation descended with nearly equal rapidity. However it was kept alive during certain months of the year it was so kept by direct infection, though the precise mode of transfer had as yet received no sufficient attention. Whatever might be the precise mode of conveyance, the infection was carried from infected human excrement to the food or lips of the infected person. The movement in the level of diarrhœal infection was the period at which the house fly began to be abundant. So far as the Manchester observations had gone, house flies had been very numerous in those households in which diarrhœa had occurred. A close correspondence existed between the number of flies captured in traps distributed in Manchester and the number of fatal cases commencing in the same week, or of deaths occurring in the following week or in the week next but one. When the incidence of the disease on districts was compared year by year it was found that the privy midden districts of Manchester tended to show exceptional fatality in warm years, corresponding to the fact that in those years middens became relatively to a much greater extent a source of flies. Dr. Niven urged that all horse manure and other fermentable refuse should be removed to a distance from centres of population at intervals not exceeding a week.

Dr. J. M. CLEMENTS (Beckenham) gave some notes upon an investigation of 44 cases of summer diarrhœa in a town in the West Riding in which flies were suspected to be a probable cause. A rough estimate was made of the number of flies in the infected houses, and flies were collected from 15 cases for bacteriological examination. In every house where diarrhœa occurred there was a large number of flies and some of the houses were infested with them. The samples of flies, 11 to 18 in each sample, were collected in sterile test tubes and classified according to species before being sent to the laboratory. They practically all belonged to the species *musca domestica*. When kept for a few hours the flies deposited large numbers of eggs on the side of the test tube, and from several batches the eggs were taken and deposited on moist bread and kept in the incubator, and the well-known larva and pupa stages observed. From collections of manure in various parts of the town some fly larvæ were obtained and their development

compared with those grown in the incubator. The larvæ hatched in the manure heaps looked almost black compared with the creamy white appearance of those grown in the incubator, due, no doubt, to their alimentary canal being filled with the contents of the manure pit. This fact should suffice to make us regard the fly with suspicion, even if its legs were not so admirably constructed for picking up and carrying whatever material its unsavoury habits induced it to rest upon. Dr. Clements expressed the opinion that summer diarrhœa was a disease depending on filth conditions, the poison entering the body usually in contaminated food, the common house fly being an active agent in distributing the poison. He did not consider that the capacity of patients for infecting others was very great.

Dr. JOHN BROWN (Bacup) said that the possibility of the house fly being a carrier of disease had been strongly urged by many medical men, especially by those who had been in tropical regions where typhoid fever was endemic. As a filth carrier and as a house pest the house fly should be destroyed, though it might serve some useful purpose in nature of which we were not now fully aware.

Mr. HERBERT JONES (Hereford) suggested that the nuisance caused by the large accumulations of excremental filth in country districts might be very materially lessened if the provisions of the nuisance sections of the Public Health Act, 1875, were more stringently enforced.

Dr. MCWALTER considered that the idea that the house fly was the cause of disease was a mere superstition, though he admitted that a great deal of good might be accomplished by removing accumulations of filth on which the flies were bred. In continental cities flies were very prevalent, but epidemic diarrhœa was not so common as with us.

TWELFTH SOUTH AFRICAN MEDICAL CONGRESS (1910), CAPE TOWN.—It was originally decided to hold this Congress in October, but it has since been decided to hold it from Nov. 7th to 12th. The Union Parliament is expected to meet on Nov. 4th and during that week and the following one the Union festivities, pageant, and other proceedings will take place. The President is Dr. C. F. K. Murray; the vice-president is Dr. C. Macgowan Kitching; the honorary treasurer is Dr. R. Arderne Wilson; and the honorary secretary is Mr. H. A. Moffat, F.R.C.S. Eng., whose address is Norwich Union Buildings, St. George's-street, Cape Town. There are the following sections—viz., medicine, surgery, obstetrics and gynæcology, public health, eye, ear, nose, and throat, pathology, and special subjects. Every registered medical practitioner in South Africa is eligible for membership. The subscription is 1 guinea. The secretary informs members of the medical profession intending to be present at the Union celebrations that they will receive a hearty welcome at the Congress. Dr. A. Jasper Anderson, medical officer of health of Cape Town, is chairman of the entertainment and reception committee.

NINTH INTERNATIONAL ANTI-TUBERCULOSIS CONFERENCE, BRUSSELS.—This Conference will take place at Brussels from Oct. 5th to 8th. On Oct. 4th there is a preliminary visit to Mons to inspect the measures there against tuberculosis. On the 5th there will be several meetings of various commissions—viz., those on sanatoria, milk-supply, solar radiation, international statistics, and international marks (or symbols) for the state of the lungs. On the 6th various well-known speakers will address the conference; among the list we observe the following abbreviated significations—viz, Philip—Edinburgh, Raw—Liverpool, Williams—London, Woodhead—Cambridge. On the 7th the following subjects will be discussed:—Protection of Children from Tuberculosis, Tuberculosis and School, and the Campaign against Tuberculosis and the Women. On the 8th there will again be meetings of the various commissions and reports on the progress of the campaign against tuberculosis in the various countries. These serious proceedings will be followed by an excursion to Antwerp, and on the Sunday an excursion to see the arrangements for the tuberculous at Liége, at the Sanatorium Borgoumont, and at the sanatorium of Mont sur Meuse at Namur. The conference is under the patronage of His Majesty the King of the Belgians. The honorary secretary is Dr. Pannwitz, Avenue Van Volxem, 253, Forest-Brussels.

Looking Back.

FROM

THE LANCET, *SATURDAY*, August 18th, 1832.

REMARKS ON THE

DISINFECTING POWER OF HEAT,

As an Agent for destroying Contagion or Pestilential Miasmata.

By J. HANCOCK, M.D., London.

IT has been with some surprise that I have observed, that the disinfecting power of heat is regarded by gentlemen of science as a new discovery. I considered it a very common and prevalent idea, and recollect seeing the method employed, many years ago, on clothing, which had been worn by persons in small-pox, being smoked and *roasted*, I might say, by nurses, before a strong fire, for the purpose of destroying infection. I do not say this to invalidate the experiments of Dr. Henry,[1] who, it may be said, "improves whatever he touches." I have seen the same alluded to, or directed, I think in the old French Encyclopedia, and other works, which I cannot now call to mind; but I may refer, on this subject, to the letters of Dr. Lobb, addressed to Martin Folkes, Esq., president, and read at the meetings of the Royal Society, 1743-4. From these I beg leave to give a brief extract. "I will take up no more time," says Dr. Lobb, "at present, than to mention two methods for removing the *pestilential particles* from *infected goods* or apparel, which may prove both effectual and expeditious. One is by airing them before *brisk fires* made in chimneys;" and he conceives that, "as water is carried off by heat, so the pestilential particles also, which are more volatile, must be speedily removed by the action of heat from infected goods; that although simple exposure to the air would in time effect the same purpose, yet the means proposed *by heat* is likely to do more in one hour, than the other in several days." On the same principle he recommends, that persons who have been exposed to the *fomes* of pestilences, should take the earliest opportunity of approaching a brisk fire, turning round before it to get rid of any infection received in their garments. This, he thinks, deserves the attention of all who have been exposed amongst the sick.

The other method of disinfecting is, by boiling all such articles as may not be spoiled by the process, by which means, as in the application of *dry heat*, the pestilential particles will be carried up the chimney; for he believed the miasma is not destroyed or decomposed, but driven off by heat. *Lobb on the Plague*, p. 48-51; and this opinion would seem to have been borne out by experiments on small-pox, as cited in *Lyon's Treatise on the Prevention of the Plague*, where it is stated that the smoking of infected clothing conveyed the infection of small-pox to some distance, denying that fire will destroy the pestilential miasm, if confined, but he believes it extremely evanescent on the approach of heat, p. 359. I may observe that this book of Dr. Lobb, although abundantly mingled with the superstitious philosophy of his day, contains much sound sense and useful information, and that his pathological opinions are rational, and rather superior for one of his time.

It would appear that, in earlier times, ships, merchandise, and all, were frequently burnt to get rid of contagion, but the good Dr. Lobb, conceiving the *pestiferous particles* may be thus disseminated in the air, proposes another measure equally rational and efficient—that of "*sinking* the infected ships to the *bottom of the sea!* and burying infected goods deep in the earth," which, he says, is likely to prove very effectual for preventing the propagation of *pestilence!* See p. 366. This would put out of countenance, perhaps, even the most zealous and froward advocates for contagion and quarantine of the present day. The fact seems to be that, in those days, they actually believed in the vagaries which are now known, and acknowledged by most honest men, to be set up as mere *scaricrows*.

[1] Vide "Looking Back" in THE LANCET, Jan. 22nd, 1910, p. 261, and April 23rd, 1910, p. 1147.

THE LANCET.

LONDON: SATURDAY, AUGUST 20, 1910.

Florence Nightingale.

ON Saturday last the world learnt that FLORENCE NIGHTINGALE was dead. By her death we have lost a woman worthy of commemoration for her deeds and her creeds alike, the founder of our modern institutions for the training of nurses, and the example pre-eminent in our day of the Christian life, the life that is lived for the sake of others. By her initiative, by her achievements, by her example, FLORENCE NIGHTINGALE will stand for all time as the pioneer of skilled and scientific nursing; no less will her kindness of heart and tenderness of touch, sympathy of soul and desire to serve the sick and afflicted pass into the region of history. The primal qualities, without which no woman is a nurse—be her uniform and training what they may—were as fully developed in her as her powers of organisation and her ability to think largely. Susceptibility to the sorrows of others and capability to nurse the sick and suffering we have in abundance, and there is not a day nor an hour in which many patients do not feel that they have been bountifully blessed in the nursing administration placed at their disposal; but the career and personality of FLORENCE NIGHTINGALE are so important because in her, the apostle of scientific nursing, it was proved that such nursing does not consist in the exhibition of loveable or dutiful characteristics, needful though these are, but requires the recognition of the futility of any struggle against disease which is not based upon a knowledge of the physical causes which underlie disease, and a recognition of the hopelessness of remedies not directed to the removal of such causes. With the advance of medical and surgical knowledge the art of nursing has become more complicated. Newer and better methods have replaced the old, and a higher measure of general and technical education is required from women who contemplate entry into the ranks of trained nurses. But the underlying principles are the same as those which guided FLORENCE NIGHTINGALE in her spendidly successful efforts to elevate the profession of nursing into an organised and scientific calling.

We make no attempt to write a detailed biography of FLORENCE NIGHTINGALE; what she actually did is well known to all, while every newspaper in England has recalled to our recollection during the week the salient points in her career. But consideration of her most dramatic action will be in place, proving, as it does, how free from all exaggeration is our present and past eulogy of her. The hospital at Scutari, when FLORENCE NIGHTINGALE arrived there with her band of nurses on the eve of the battle of Inkerman, was a seething scene of loathsome confusion; the vilest of dangerous and contagious conditions were rife and were unalleviated by any of the usual accessories and supplies of a hospital, the patients in which were suffering, and of course with disproportionate acuteness, from the break-down of the commissariat. The miserable inmates had neither changes of clothing nor proper food; fever-stricken and pest-ridden, their admission to the hospital in itself was depriving them of what chances of life they might have had. Into this hell came FLORENCE NIGHTINGALE unafraid; courage and knowledge were her equipment, and not the least part of her knowledge was shown in her belief in order and the power of discipline. She could be inflexible as well as loveable. She left the hospital at Scutari cleansed. Routine was called up in chaos, hope replaced panic, and almost hourly the appalling death-rate dropped. We have spoken of her knowledge, and it is particularly important that no one should imagine that FLORENCE NIGHTINGALE went out to her work untrained. Ten years of her life had been spent in preparing, unconsciously, for the gigantic opportunity of benevolence which came with the Crimean war. A woman of means, and deeply touched by the sorrows of the sick poor, she left society on one side and sought a wider experience of nursing than was obtainable in a little Derbyshire village. There, as the squire's daughter, she was the benefactress of the villagers, and there the idea grew up strong in her that such individual efforts as she could make would be a source of immense strength to any nation if they could be properly coördinated and systematically trained. She visited all the hospitals in London, Dublin, and Edinburgh, many county hospitals, and some of the naval and military hospitals in England; then the hospitals of Paris and Lyons, Brussels, Berlin, Rome, Alexandria, and Constantinople. Trained in this strenuous way her talents of organisation were first displayed when she took over the control of the Home for Sick Governesses, and, with the help of Lady CANNING, succeeded in re-establishing the institution upon a sound basis. She had therefore practical and scientific experience at her command when the whole country was moved to rage and tears by the cry of RUSSELL, the war correspondent of the *Times*, in which he said: "Are there no devoted women among us able and willing to go forth and minister to the sick and suffering soldiers of the East in the hospitals at Scutari?" SIDNEY HERBERT, the War Minister, turned to FLORENCE NIGHTINGALE, and history says that she simultaneously turned to him; and within a few hours "the lady with the lamp" was on her way to the front. This is the way in which the whole story must be remembered, for the essence of it is that FLORENCE NIGHTINGALE did not so much perform a splendid deed of devotion out of her loving-kindness and patriotism, as place at the service of her country talents that had been matured with no idea of great deeds and eternal fame, but with the humbler hope of alleviating some misery in her generation. Heroine she was, but by no accident of temperament or emotion; she showed as a great woman on the stage of history because, and with no hope of playing any supreme part, she had prepared herself for all calls.

The deficiencies of the Army Medical Service during the Crimean campaign gave rise at the time to false ideas of medical neglect and incompetence, but FLORENCE

NIGHTINGALE was never in any doubt where the blame really lay. Her chief victory was over ignorance in high places. Medical men and medical officers of our army were well aware of the causes which led to the terrific toll of human life demanded by the conditions at Scutari, but science was powerless against crass officialdom. Letters from Sir ANDREW SMITH relating to the sanitary care of our army in the East, and published in THE LANCET in 1855, demonstrate the fact that if our soldiers were dimidiated by disease, exhaustion, and exposure, it was not because the medical department displayed lack of foresight, absence of zeal, or poverty in counsel. These letters are replete with wise suggestions, and the neglect with which they were treated by those who had the power and the indiscretion to override the Medical Director-General in his own department proved the need for reform in the war administration which afterwards was allowed on all hands to exist. Not the least of FLORENCE NIGHTINGALE'S achievements was that of awakening the official mind to the necessity in medical things of seeking, accepting, and acting upon the opinions and recommendations of sanitary and medical experts. She showed in her own life, and in a way that it was impossible not to understand, the value of trained and enlightened special knowledge; and in no small measure her career has been responsible for the growing, if slowly growing, respect with which scientific views are treated by government bodies.

Emotion as a Factor in the Development of Neuropathic and Psychopathic Symptoms.

IT is a commonplace of the novelist to depict the Anglo-Saxon as stolid and the Latin as volatile and emotional, and one of the redeeming features of the platitude is its truth. There are few who will deny, in spite of our ignorance of the psychology of crowds, that the Parisian mob is more prone to become inflamed by any passing wind of emotion, more instant in its cry of "Conspuez ZOLA!" or any other individual who has become for the moment its special aversion, than any corresponding mob of Teutonic origin. No attentive reader can scan the columns of the *Journal de Paris* without being struck by the daily recurrence of major and minor crimes which evidence a complete (and perhaps congenital) absence of self-control and an utter surrender to transient emotion on the part of the perpetrator. Our Italian correspondent has called attention frequently to the same position as it exists throughout Italy. While, no doubt, the human mind is essentially the same the world over, national and racial differences of temperament are so great that psychoanalysis is fated to be inadequate if their importance as factors in the genesis of neuroses and psychoses is ignored. It is well recognised, for instance, that among the Jewish race so-called functional nervous disease is more rife than among, say, the Scots; and, further, it is questionable if the "*grande hystérie*" of the Polish Jewess can be duplicated in the Scottish patient. If hysteria is the expression of mental disaggregation or dissociation, its phenomena must depend on the mental constitution of the subject, and this is a matter of the race. The traveller in Brazil may be witness of a sudden and violent altercation in the course of which knives are drawn, and be astonished to learn that the subject of dispute is whether a certain street leads to the railway station or away from it. That sort of thing is not likely to be observed in Bavaria, and hitherto has been unknown in this country, where, however, the national phlegm is no longer so pronounced.

During last winter the Société de Neurologie and the Société de Psychiatrie of Paris, which number among their members some of the most honoured names in medical science of to-day, held a *réunion* or joint meeting, or rather series of meetings, at which the subject of discussion was the rôle played by emotion in the genesis of neuropathic and psychopathic affections. The official report of the proceedings runs to more than 130 pages in the *Revue Neurologique*. The whole discussion was maintained on a high level, and many of the communications were profoundly interesting and suggestive, while the proceedings were fascinating by reason of the sidelights thrown on the working of the minds of some of our most distinguished French colleagues. Professor DEJERINE, for instance, admittedly one of the most experienced of the neurologists of to-day, avowed himself an ardent adherent of the view which assigns the development of hysteria and neurasthenia to an emotional shock. He considers emotion as much the most important—indeed, he would say the unique—factor in the genesis of these conditions. The explanation of the mechanism whereby hysteria develops after *le choc émotif* is more difficult. Why emotion should react on the vasomotor system of one individual, on the digestive apparatus of another, on the motor or sensory system of a third is unknown. Professor DEJERINE maintains stoutly that such diverse phenomena are prime; he denies that they are the result of any suggestion of any sort whatever, and believes that the peculiar mental condition of the patient will decide whether they are to be transitory or permanent. It is this peculiar mental constitution of the hysterical patient that explains why it is that in his case the symptomatology produced by an emotional shock is different from what is produced by the same cause in a case of neurasthenia. Many clinical instances were quoted apparently supporting this contention. Now when a neurologist so experienced as Professor DEJERINE expresses such weighty opinions, we naturally wonder what are the elements that make up the mental content of his patient—what, in fact, is the type of patient that has come before him. That emotion *per se* should be the exciting cause of neurasthenia and hysteria is not likely to be considered usual by those who are familiar with the matter here in England. As a nation we are less emotional, less exuberant, less gesticulative; we are more inclined to inhibit the outward expression of our feelings, to suppress their action on the motor system; and while emotional shocks are of frequent occurrence among our patients, their results are less noticeable and less permanent. It is important to remark, moreover, that M. BABINSKI was entirely opposed to the views enunciated by Professor DEJERINE. For him, hysteria is never the result of a shock, but always the result of suggestion, autosuggestion or otherwise. He quoted the observations of

Dr. NÉRI, who proceeded to the scene of the catastrophe at Messina immediately after the earthquake and fire, and who, examining more than 2000 persons suffering from shock, failed to find a single instance of hysterical contracture or paralysis. Further, M. BABINSKI personally questioned the mortuary attendants of four or five of the large Parisian hospitals, men who had seen during their term of office some 200,000 visitors to their mortuaries, and who naturally had been witness of many distressing scenes. He elicited from them the fact that they had never observed any hysterical attacks among the visitors, at least none which were severe enough to warrant the house physician being sent for. On these two facts he laid the greatest stress in his arguments against the emotional origin of hysteria.

The contributions of Professor JANET to the discussion were admirably lucid, and marked by rare clinical and psychological acumen. He deprecated exaggeration of the rôle played by suggestion in hysteria; the influence that a simple idea or ideas may have on conduct, on moral health, on the organism generally, is not sufficiently understood. It is very easy, according to Professor JANET, to say that the idea of such and such an accident has changed an individual's nature, made him ill, rendered him liable to "crises" of various sorts, produced paralyses or contractures, necessitated his sojourn in a hospital for months, perhaps years. The conception is strange, in spite of the eagerness with which it is accepted to-day. In an ordinary way ideas much more clear and important often fail to exercise any particular influence on our conduct and mental health. We are astonished to see men of science devote long years of their life to the prosecution of a single idea—we note and admire such concentration; yet we are not astonished to find feeble women, without any special moral or mental strength, consecrate ten years of their life to the idea that they have had an "attack of the nerves" and that paralysis has been suggested as the result. Professor JANET thinks that suggestion, or rather suggestibility, is merely one hysterical symptom among many others, and that it is caused by some other disturbance or impairment the roots of which pass much deeper into the mental life of the individual.

Science in the Country.[1]

Sir HORACE PLUNKETT is so well-known a personality that we need not apologise for introducing him in this instance in the limited character of an Irishman writing for the benefit of citizens of the United States upon a subject which he has made his own by experience in Ireland and in America. But it must be remembered that he is also a thoroughly wise man and a well-equipped scientific observer, so that we should be ungrateful if we did not recognise that his book teems with hints and suggestions applicable to our circumstances in England. In England, as in the United States, we have an insistent rural life problem upon the solution of which our continued national prosperity may depend in a greater degree than many of us recognise. The development of agricultural prosperity in the United States and its threatened decline have followed a different course, owing to natural circumstances, from that which has brought about the state of affairs now existing in England. In Ireland the extraordinary position has been reached that a whole new rural history can be, and is being, commenced, from which it follows that to Ireland those interested in land problems will probably look in the near future for many practical lessons. But for the present we make no mention of Ireland, and confine our attention, in the perusal of Sir HORACE PLUNKETT'S pages, to the application of his observations to one only of the countries composing the United Kingdom.

He starts with the proposition that in the United States, as in other English-speaking communities, the city has been developed to the neglect of the country. We need hardly refer to the excessive influence of the town in our own politics, to the preponderance assigned in our elementary education to the requirements of town life and town industries wherever that education may be administered, or to the migration from country to town which has depleted our villages to see that we have an analogous situation in England; for undoubtedly with us urban attraction has seriously handicapped any development of rural prosperity to correspond with the increasing wealth and influence of urban districts. With us, as in the United States, it is possible to say, in the words of Sir HORACE PLUNKETT, that "modern civilisation is one-sided to a dangerous degree, that it has concentrated itself in the towns and left the country derelict"—a tendency which he regards as peculiar to English-speaking countries where great industrial progress has left as its consequence the question whether rural progress cannot also be set in motion and the townward tendency checked. The methods by which this may be attained must differ widely in detail according to immediate circumstances, but the general conclusions arrived at in the volume before us deserve close study, and in particular we recommend these matters to medical men as food for valuable thinking. That the welfare of this country largely turns upon the health of the population is a truism; and that a return of a proportion of the population to properly paid agricultural pursuits would bring a vast improvement in public health is another. The imminent provision of a modified service of State medicine will take the second into account, as well as the first, and our profession ought to be equipped with as much information as they can obtain upon such matters. We read in Sir HORACE PLUNKETT'S book that "the predominance of the towns which is depressing the country is based partly on a fuller application of modern physical science, partly on superior business organisation, partly on facilities for occupation and amusement; and if the balance is to be redressed the country must be improved in all three ways. There must be better farming, better business, and better living. These three are equally necessary, but better business must come first. For farmers the way to better living is coöperation, and what coöperation means is the chief thing the farmer has to learn." Needless to say, the question of scientific farming is a very different one at home from that which makes itself heard "on the mammoth wheat farms where, as the fable ran, the plough

[1] The Rural Life Problem of the United States: Notes of an Irish Observer. By Sir Horace Plunkett. New York: The Macmillan Company. 1910. Pp. 174.

that started out one morning returned on the adjoining furrow the following day," and where the invocation of mechanical science has aided in the perpetration of "the greatest soil robbery in agricultural history." With us, however, as in Northern America, in different degrees and for different reasons, it may fairly be said that "the application of science to legitimate agriculture is comparatively recent." The scientist, classified by the cowboy as a "bug-hunter," is not regarded as yet as a possible instructor or collaborator by the old-fashioned British farmer, yet scientific entomology in our islands may find little less destructive insect pests on which to exercise itself than on the grain or fruit farms of the United States, and it may find a population of farmers equally or more unready to recognise its potentialities and to further its experiments. The scientific aspects of improved cultivation should contain elements of interest to the medical profession no less than the prospect of seeing an increased number of the population growing up in those health-bringing surroundings which are unattainable in the town dwellings available for the working poor.

The medical profession has watched with regret that movement which has come to be known as the "rural exodus," and which has not only brought loss to many of its members having their homes in country districts, but has produced upon all of them a sense of hopelessness when the far-reaching troubles of over-crowded town tenements and impossible rural dwellings are contemplated. In Sir HORACE PLUNKETT'S book we find recommendations as to how, by coöperation among those interested, better marketing of country produce may be obtained, and, what is no less important, how through that coöperation and the community of business interests accompanying it the diffusion of growing knowledge, the adoption of better methods of production, the enjoyment of common social recreation, may combine in the achievement of "rural regeneration." With regard to the assistance to be sought from the State in all this, the examples and illustrations derivable from what is already being done in the United States may not be readily accessible to us, nor may they be of easy application to our case owing to widely different circumstances of life; but the operations of the Irish Department of Agriculture and other Industries and for Technical Instruction bring us nearer home. The part which Sir HORACE PLUNKETT played in the initiation of that organisation is well known and the potentialities suggested by his words are vast. All interested in the welfare of this country should be glad to inform themselves upon the factors which have led to rural depopulation and upon the opportunities that may be with us for arresting the mischief. And especially do these matters concern medical men, for primarily it is the physique, the prolificity, and the hereditary influences of the nation that are in question, and it is to medical men as a body that the care of the population in these respects must be confided.

WE are informed that His Majesty the King has graciously consented to become a patron of the Earlswood Asylum, the well-known national training school and home for the feeble-minded at Redhill, Surrey.

Annotations.

"Ne quid nimis."

THE SUN-BURNT FACE.

RIGHTLY or wrongly, the face browned by the sun is regarded as an index of health, and there are some persons who feel that the money spent upon a holiday has been well spent if they come back sun-burnt. This view is in general justifiable, since the sun-burnt face implies that the individual has been exposed to a fresh, healthy, and open environment—to surroundings, that is to say, which have reacted upon him in a way which routine fails to do. It is true that nowadays the mere pigmentary effect of the sun upon the skin can be readily imitated by employing the chemical or ultra-violet rays of the electric light, and in particular the rays of the quartz mercury lamp; and so, if all the result required of a holiday was merely a sun-burnt face, this could be done in the space of minutes instead of an expensive holiday at the seaside extended over weeks. It follows that mere sun-burn is not, strictly speaking, an index of acquired health. No amount of ultra-violet ray treatment, however, can produce the decided general improvement in health and tone which a change of air and scenery does. The truth is that the sun's rays are only one contributory factor to the restoration of health, and therefore the sun-burnt face is merely evidence that the opportunity of an outdoor life has been seized. But the outdoor life connotes constant fresh air and exercise, in the wake of which follow healthy functional activity, good nutrition, and a general equilibrium of the system, all of which means that the machine is going smoothly, and that the life processes are not hampered by excess or by shortage. These conditions apart, it is probable that the bronzing produced by exposure to the sun is to some extent an indication of vigour and a satisfactory state of the blood, since the hæmoglobin of the blood supplies the pigment to a sun-burnt skin and in this way serves to protect the tissues. If this protection is not afforded blistering or sun eczema may result. In a word, sun-burn is merely a protective effort of the body. The active light rays of the sun, again, undoubtedly give a healthy stimulus to the respiratory process, since under their influence it has been proved that the quantity of oxygen absorbed is greater, while an increasing output of carbonic acid follows. It is interesting to recall in this connexion the experiment which showed the apparent anomaly that animals deprived of nourishment die sooner in the chemically active rays of the sun than when they are exposed to the inactive rays. The activity of the vital processes in these cases being augmented, the store of energy was soon used up. Exposure to sunlight, again, increases the number of blood cells, but the absence of light diminishes the number. A face burnt brown by the sun would seem, regarded in this way, to be a sensible object of a holiday, not, however, because the face is so bronzed, but because the circumstances which conspired to produce the brown complexion have other factors favourable to an all-round healthy state.

THE ROYAL COLLEGE OF SURGEONS IN IRELAND AND A CLAIM FOR STATE SUPPORT.

WHEN the scheme for the establishment of the new University of Ireland was drawn up we pointed out the injustice that was being done to the Royal College of Surgeons in Ireland. We showed that the scheme which was then brought forward, and which has since been sanctioned by Parliament, made a very invidious distinction between the

medical school connected with the Royal College of Surgeons in Ireland and all other medical schools in Ireland; for this was the only medical school to receive no Government grant. Such a course could not be justified, for the school had reached and maintained a high degree of efficiency. The competition with other medical schools in Ireland, especially in Dublin, has now become more acute, for the funds placed by the Government at the disposal of other schools has enabled them to compete unfairly by offering prizes and other attractions. Already there has been a falling off in the number of students at the College school, for while the number of class tickets issued for the winter session 1908–09 was 421, the number for the winter session 1909–10 fell to 350. The Council of the College has done its best to increase the efficiency of the school, and last year it expended £1000 on the anatomical department. Should the numbers of students continue to decrease still further, it may well be that the Council will find it impossible to continue to carry on the school, and then its doors will have to close. The President of the College has addressed a letter to Mr. Birrell, Chief Secretary for Ireland, drawing his attention to the grounds upon which the College is applying for a Government grant. The moral claim is great, and we sincerely hope that the Government will see its way to make an ample grant in aid of a school which has done very good work in the past, and is capable of doing very good work in the future. We trust that amid the storm and stress of politics the needs and claims of a valuable institution will not be neglected.

PHARMACOPŒIAL DOSES.

IN stating the doses of medicinal substances it has been customary to give both minimum and maximum doses, a convenient mode of expression which does not appear to have any disadvantages. The compilers of the current (eighth) edition of the United States Pharmacopœia, however, contented themselves with stating the average dose. As both the British and United States Pharmacopœias are now undergoing active revision, it is of interest to consider this question with a view of eliciting the opinions of those for whom a pharmacopœia is written. At the recent annual meeting of the American Pharmaceutical Association Dr. Clement B. Lowe suggested that the greatest benefit would result from stating not only the minimum and maximum individual doses, but also the maximum dose for 24 hours, as is done in a number of European pharmacopœias. This suggestion is worthy of the serious attention of those entrusted with the compilation of the forthcoming British Pharmacopœia, for the reason that it would be of great help in compounding prescriptions. It can hardly be expected that the majority of pharmacists are posted in regard to the rate of the elimination of drugs from the human system, and yet this factor largely governs the amount of a drug that can safely be taken in a given time. For instance, hydrocyanic acid is eliminated so rapidly from the system that there would be but little danger in taking a maximum dose every hour. Belladonna rarely produces fatal results owing to the rapidity with which it is eliminated. On the other hand, potassium bromide is eliminated from the body very slowly, and when administered day after day it tends to accumulate in the body, producing untoward results. The same is true of strychnine and many other powerful drugs, including digitalis, which is so slowly excreted that it is a question whether more than two maximum doses should be given during 24 hours. It is obvious, therefore, that the inclusion of maximum daily doses of powerful drugs in a pharmacopœia affords an additional safeguard against administering an overdose, by placing within the reach of the dispenser an authoritative expression as to the limits of safety. Dr. Lowe mentions the case of acetanilide, the average dose of which is given in the United States Pharmacopœia as 4 grains, although the frequent repetition of this dose would be distinctly dangerous. When this drug first came into use as an antipyretic two 5-grain doses, given at an interval of some hours, produced cyanosis. The only possible objection against a more careful and explicit statement of doses in a pharmacopœia would be that it would unduly inflate a volume already grown to somewhat unwieldy proportions. Such an objection, however, should not be allowed for a moment in a case like this, where the innovation is so obviously useful. A pharmacopœia, unfortunately, has to serve several purposes, some of which would seem to be far removed from its original purpose. At first pharmacopœias were compiled in order to establish uniformity in the strength and composition of medicines. Methods of preparing medicines were inserted in order to assure, as far as possible, that the products of different pharmacists should not differ in strength and composition. As time went on precise analytical methods were devised for standardising medicines, and these were included in order that there should be uniformity in the methods of different analysts. During the past decade or two the recognition of the British Pharmacopœia, as containing the official standards for medicines, has tended more and more to make the chemical portions of the book encroach upon the medical portions. In other words, there has been a tendency to consider the Pharmacopœia from the analyst's point of view rather than from the physician's. It is, of course, desirable that drugs intended for other than medical purposes should reach the requisite standard of purity, but this could be achieved by other means than by defining them in a pharmacopœia. In short, we arrive at the conclusion that in compiling a pharmacopœia all considerations should be subordinated to the needs of the medical profession and pharmacists, keeping in mind the original idea that such a work is intended as a guide to the pharmacist as to the composition and strength of medicines in common use. And in dispensing such medicines the question of dosage is one of commanding importance.

A POOR-LAW MEDICAL OFFICER AND HIS AUTHORITY.

To the Steyning board of guardians one of its district medical officers in an application for an increased salary wrote thus: "The most peculiar feature of my district is the large number of paupers (technically known as 'foreigners') who have drifted into it as 'paying guests' from other unions round about. There are more of these 'foreigners' in my district than in all the other districts of the union put together. And I would ask you to make a note of this point: These people are no expense to the ratepayers of this parish or union, but they immediately become a heavy expense to me personally by drawing on my surgery for drugs and dressings. They come in as if it were a chemist's shop. Having diagnosed their own complaints they prescribe their own remedies, and if I offer to deny them they cry out that they are being 'done out of their rights.' A district medical officer should, of course, look after the genuine paupers of his own parish, but it was never contemplated that he should have thrust upon him a whole host from neighbouring unions. ..... I might be almost said to run a charity bureau, so little do I get out of the appointment now." Now, how did the guardians meet this medical officer's request? By a ready acquiescence, one would suppose. Not so. There was a discussion, both in committee and in the board room, on the question of non-settled relief, very little on the actual subject before them—the heavy work and the numerous calls

upon the medical officer—and finally the board adopted the recommendation of the committee that the application be not granted. The guardians think probably that ere long the whole question of the Poor-law will be the subject of legislation, and so the medical officer must continue his work on the miserable pittance of £80 per annum, which sum was granted him in 1902 after 13 years' service at £60 per annum, when the population of his district was between 5000 and 6000, as compared with 30,000 and over to-day. The Steyning board of guardians seems hardly to realise the far-reaching importance of the work of the district medical officer, or it would have met his application in a more generous manner. And those of the medical profession who lean towards a reform of the Poor-law which will leave a State medical service still in the control of the guardians will feel that the Steyning board, and authorities of like views, furnish unfortunate arguments.

THE PREVENTION OF BILHARZIOSIS.

IN THE LANCET of August 6th we published an important article on Bilharziosis and How to Prevent It, by Dr. James F. Allen of Pietermaritzburg, who has for many years given much attention to the subject. The comparatively small incidence of the disease and the mildness of its manifestations in South Africa are in marked contrast with the widespread diffusion and acknowledged severity of the malady in Egypt. We have it on the authority of Dr. F. C. Madden, professor of surgery in the Government School of Medicine, Cairo, that bilharzial infection appears to attain the highest level of pathological activity in Egypt. In a paper by Professor Madden published in THE LANCET of Oct. 23rd, 1909, description was given of some of the very serious lesions caused by the disease, which in many cases proves fatal; and in the Section of Tropical Medicine at the recent annual meeting of the British Medical Association in London Professor Madden showed a series of lantern slides depicting in a very graphic manner the ravages of bilharziosis on the genito-urinary tract and lower end of the bowel. No one who was present at that demonstration will deny the very formidable character of the disease as observed in Egypt at the present time. One authority has estimated that from one-third to one-half of the fellaheen population now suffer from bilharzial infection. On the other hand, Dr. Allen points out that in South Africa the natives suffer very little from the malady, and that no one now contracts it unless it be either a stranger who has not learnt the secrets of the land in which he has come to live, or else some wayward boy who, in defiance of the advice and warnings of his parents or friends, has indulged in prolonged bathing in forbidden waters. The natives wash their bodies by a process of laving with the hands, and though they both bathe and swim they are careful not to remain long in the water, and to this moderation Dr. Allen attributes much of their immunity from the disease. It is now held by many that the chief way in which bilharziosis is contracted is by protracted immersion in a contaminated river or lake, when the parasite enters the urethra or anus of the victims. Dr. Allen states that the disease mainly attacks boys below the age of puberty, who after prolonged bathing do not dry themselves thoroughly on leaving the water. Those with a long prepuce are particularly predisposed to the disease, and persons with a retracted prepuce are less liable to infection than those with an unretracted prepuce. The South African natives appear generally to recognise the risks associated with bathing, and with a view of guarding against infection while in the water some of them tie a string round the penis. Circumcision is regarded by Dr. Allen as a valuable preventive measure. In a former paper which he contributed to THE LANCET of May 8th, 1909, on Bilharziosis and Circumcision, he set out fully all the considerations involved. The malady has a wide distribution in Africa, especially in the basin of the Nile; it is even met with on the shores of Victoria Nyanza, from which the river takes its rise; but it is especially in Egypt that it has prevailed for many ages. We understand that during some investigations which were made by Dr. Armand Ruffer, director of the Egyptian Quarantine Board, he found evidence that the disease had existed in the bodies of certain mummies belonging to a very remote period. The practice of circumcision is said to have originated in Egypt, and from the records on ancient sculptures it is proved that the operation was practised some 2000 years before the Jews were led into bondage under the Pharaohs. Dr. Allen suggests that as the ravages of bilharziosis date back to remote ages, circumcision was originally performed as a preventive measure against bilharzial infection, but that later it came to be regarded as a religious rite. The difference in the incidence and severity of the disease respectively in Egypt and in South Africa warrants close attention being given to the suggestions put forward by Dr. Allen for preventing the malady by a diminution of the facilities for acquiring the infection. Prolonged bathing or immersion in contaminated waters must be avoided; the body must be carefully dried after leaving the water to detach any parasites which may be adhering to the prepuce or about the anus of the bather. Anyone attacked by the malady should be placed at once under medical observation, and his urine should not be allowed to enter any stream or pond so as to infect it. The patient should avoid all opportunity for a recurrence of the infection, since there is evidence that the parasite is unable to reproduce itself fully within the human body; so that if further invasion can be avoided the disease may tend to die out in the individual, as is said to be the case in South Africa. It is obvious that in Egypt education, especially of boys, as to the manner in which the disease is spread and how this can be avoided should be carried out. And even the practice of infant circumcision might be encouraged. It would indeed be a great achievement if by the adoption of the comparatively simple measures indicated by Dr. Allen, bilharziosis, which has inflicted such sufferings on the inhabitants of Egypt for thousands of years, could be entirely prevented or at all events materially reduced.

QUININE AND UREA HYDROCHLORIDE AS A LOCAL ANÆSTHETIC IN ANO-RECTAL SURGERY.

AMONG the many interesting papers read at the recent annual meeting of the American Proctologic Society, held at St. Louis, Missouri, there is one which deserves special mention. Dr. L. J. Hirschman of Detroit, Michigan, reported his work with quinine and urea hydrochloride as a local anæsthetic in ano-rectal surgery. The cases operated upon were 102 in all, and of these 49 were cases of hæmorrhoids and 14 were cases of fistula in ano. In 2 cases Ball's operation for pruritus ani was performed, and the remainder were operations of less importance. The anæsthesia in every case was perfect during the operation, and in only 7 cases was there any post-operative pain. The technique employed is the same as that used with a weak solution of cocaine, and Dr. Hirschman considers it perfectly satisfactory in all cases where suturing of the skin is not required. A 1 per cent. solution of quinine and urea hydrochloride was employed. He claimed that its advantages are: It is soluble in water; it can be sterilised; it is equal to cocaine in anæsthetic power; it is absolutely non-toxic; it has a pronounced hæmostatic action; post-operative anæsthesia generally lasts from four

hours to several days; and lastly, it is inexpensive and nearly always available. We notice that at the same meeting Dr. Arthur Hebb of Baltimore reported a case in which this anæsthetic was used for an operation for fissure and hæmorrhoids. An erythema developed over the ischio-rectal region, followed by a profuse serous discharge which lasted four or five weeks, while the wound showed little tendency to heal. From the brief account we have received of this case it appears to us to be one of septic infection, and it need not prevent a full trial of the form of anæsthesia adopted.

THE DIPHTHERIA OUTBREAK IN HATFIELD.

BETWEEN March, 1909, and May, 1910, 35 cases of diphtheria came under the notice of the sanitary authority at Hatfield. There were 10 deaths, constituting a mortality of 28 per cent. The incidence was chiefly upon children from 3 to 12 years of age living under conditions of bad housing and feeding. In November, 1909, when the epidemic began to assume serious proportions, steps were taken for the closure of the schools and the bacteriological examination of the throats of the school children, both those who had had slight affections during the previous two months and all other children who had been in contact with diphtheria patients during the same period. After the closure of the schools there was some increase in the number of notifications, and the medical officer of health advised the reopening of the schools and the employment of health visitors who should daily examine the throats of the scholars and use an antiseptic spray for all suspicious throats. Later in the same week, i.e., in the early part of January, 1910, the district medical officer of health met Sir William Church, Dr. H. T. Bulstrode of the Local Government Board, and Mr. E. F. Fremantle, the county medical officer of health, in conference. Closure of the schools was agreed upon, arrangements were made for beds at the Hatfield and Ware Joint Isolation Hospital, and it was further agreed that a skilled bacteriologist should be employed to investigate the causes of the epidemic. On Feb. 1st it was decided to reopen the schools except the infant school, which reopened on March 1st, and on April 11th the health visitor's engagement terminated. Dr. Lovell Drage, from whom we have these facts, came to the following conclusions: The mere isolation of school children suffering from diphtheria is insufficient to stay the spread of the disease, and as the bacillus is only found in the deeper parts of the diphtheritic membrane the bacteriology of the throat does not possess so great a practical value as has been thought. The bacillus may be found in a suppurating sore in any part of the body, or in the mucous membrane of the nose, or in a discharge coming from the ear, when none can be found in the throat itself. He considers that during times of epidemics or seasonal prevalence (September to February) great importance should be given to supervision of the children of a susceptible age, and therefore closure of the schools is not advisable, but examination of the children and their supervision in school are of the utmost importance. In development of this view he considers that the use of isolation hospitals should be limited, the beds being reserved for those cases which cannot be satisfactorily treated at home, either because of the severity of the attack or because of want of sufficient attendance or for any other definite reason. "A large proportion of cases are not severe cases in many instances of seasonal prevalence, and can be safely nursed at home, the more safely in these days when an efficient remedy in the shape of antitoxin is in use. The disease is not one which spreads from one patient to another very readily in the absence of contact, and this statement leads to another, that infection is not always conveyed during these seasonal prevalencies from one person to another. I have already tried to show that there are many conditions present which account for the difficulty in proving that one case is the result of infection from a pre-existing one. To my mind the great argument against the routine use of isolation hospitals is, that when a large number of persons are herded together suffering from diphtheria in different stages, a process of reinfection is constantly taking place. Those who are reinfected do not suffer from the symptoms of the disease, but they are in a condition in which they communicate it to others. Bacteriological investigation does not apparently provide a complete means of certainty of freedom from the disease. It is for this reason that it is not uncommon to hear of epidemics which are materially lengthened in this way; return cases are very far from unknown." During the time under review it appears that great importance was attached by laymen to various means of disinfection, and the purification of bedding, carpets, and perambulators was practised, but Dr. Lovell Drage is of opinion that these extreme measures were unnecessary in view of his belief that the disease-producing bacillus is unable to carry on existence in the absence of suitable conditions, such as are not found in the articles suspected by the public.

MR. WILLIAM ALEXANDER, F.R.C.S.

AT a meeting of the Liverpool select vestry held on August 9th the resignation by Mr. William Alexander of his post of visiting surgeon to the Liverpool Workhouse Hospital was announced. Mr. Alexander, who recently resigned his office as honorary surgeon to the Royal Southern Hospital, is one of the best-known surgeons in Liverpool. He was appointed visiting surgeon in the early part of 1875, during which long period he has performed literally thousands of surgical operations, the workhouse usually containing about 3000 inmates. In accepting Mr. Alexander's resignation with much regret, eulogistic references were made by members of the select vestry expressing the high estimation in which his services were held, not only by the select vestry, but also by the large number of patients who had passed through his hands, and with whom he was so deservedly popular. Mr. Edward Horrigan, a former chairman of the board, who spoke in support of the motion acknowledging Mr. Alexander's services and expressing regret at his resignation, said that few outside the sphere of Poor-law work had any conception of the nature, extent, and complexity of the work which Mr. Alexander had been called upon to perform. When he (Mr. Horrigan) mentioned that for many years on the surgical side of the hospital Mr. Alexander had to treat many thousands of cases a year, some idea of the magnitude and responsibility of his duties might be realised; and the total mortality and death-rate was the low figure of 51 per 1000—a powerful testimony to the skill and care with which the treatment was carried out. The hospital had during recent years been subjected to much searching criticism with regard to its structure and appointments, the most flattering terms employed being "old," "obsolete," and "antiquated," but, notwithstanding these material defects, under the supervision of Mr. Alexander the results obtained would not only compare favourably with other institutions, but in many instances far excelled anything accomplished in many modern and well-equipped hospitals. He remembered reading some time ago a description of the surgical work done at the hospital by Mr. Alexander, which contained what he might describe as a plaintive note of unrequital. It had reference to the visits to the hospital of Government inspectors, Poor law guardians, philanthropists, and public-spirited individuals of every description, the main part of whose duty was to find out mistakes. Where none could be found nothing was said,

except that the hospital had been "visited." Mr. Alexander's experience had been that in the bracing atmosphere of the Poor-law there was a good deal of east wind always blowing. However, he was pleased to note that the wind had at last, on the eve of Mr. Alexander's retirement, changed, and that a warm western zephyr of caress and appreciation was now blowing. Mr. Alexander's many friends will endorse Mr. Horrigan's wise and witty words.

THE POLLUTION OF SWIMMING-BATH WATER.

A QUESTION of considerable importance from the point of view of public health is the pollution of swimming-bath water, and the best way of dealing with this pollution is a problem which is exercising the minds of several public health administrators. Unfortunately, the swimming-bath is regarded in so many crowded localities as the proper place in which occasionally to cleanse the person. It is this abuse of the swimming-bath which gives rise to the difficulty, and if only those persons who misuse the swimming-bath in this way could be induced to keep their bodies clean the pollution of the swimming-bath would be a comparatively trivial matter. Only cleanly persons, it seems to us, should qualify for the swimming-bath, and the question is whether some steps should not be taken to ensure that the swimming bathers should be compelled to wash themselves before they enter the swimming bath. It would, however, obviously be difficult to insist upon this salutary measure in cases where, as in the summer season, hundreds of bathers daily use the swimming-bath. Even if it were possible without undue expenditure of ratepayers' money (which does not appear to be the case) to provide fresh water daily for these baths, pollution would soon happen after the use of the water by dirty persons who regard the swimming-bath as a convenient way of removing gross dirt from their bodies, utterly unmindful of the fact that the swimming-bath affords a pastime, a sport, and healthful recreation which is entirely distinct from a process of lavation. So long as the mere washing view of the swimming-bath is held, so long will disgusting pictures of the condition of the water be possible. The paper, for example, contributed to our columns this week on this subject by Mr. G. H. Pearce, the medical officer of health of the borough of Batley and the urban district of Heckmondwike, is not pleasant reading, and we have little doubt that a similar story is true in regard to other places. Mr. Pearce shows plainly enough, from the abundant colonies of organisms which developed on gelatin, how rapid is the bacteriological contamination of the water of the swimming-bath. "At present," he says, "we are faced with the fact that this analysis tells us that the water examined was nothing more or less than dilute sewage." It is true that many of the organisms were harmless, but such was not entirely the case, and it can readily be understood how disease could be spread from person to person using the baths. "Diphtheria germs can be found in the throats of persons who have had the disease, although they themselves present no signs of diphtheria, and all persons using a swimming-bath get more or less an amount of water into their mouths and nostrils whilst in the bath. Again, the germs of consumption could get into the water in a similar manner, and the prospect to swimmers who swallow mouthfuls of water containing the bacillus enteritidis sporogenes is anything but pleasant. Cases of sore eyes in children I have personally known to be caused through swimming in infected bath water, and it is an easy matter to speculate on the number of diseases which might be conveyed from person to person through the medium of polluted swimming-bath water." Mr. Pearce further relates that the baths manager told him that numbers of pediculi capitis are found on the towels after use, and they are also found sometimes in the dressing boxes. He suggests that the authorities should take steps to keep verminous persons from going into the bath and a useful regulation would be, he adds, the compulsory wearing of bathing caps by girls with long hair. All this is revolting enough, but what is the remedy? Best of all, of course, would be, as we have already indicated, the exclusion of all persons who are not in a state of bodily cleanliness. It is a pity that such a regulation cannot apparently be made practicable. Cost, again, excludes the emptying and filling of the baths daily. Finally, there are the schemes which aim at purifying and sterilising the water by chemical methods, but against such proposals is the strong sentiment that in spite of the proved efficiency of such methods the same water in which hundreds have bathed is being used over and over again, and "that feeling is not a nice one." Nevertheless, if, as Mr. Pearce's valuable work has shown, the bath water reaches a condition akin to that of dilute sewage, the water ought to be treated as such before it can be regarded as in any way fit to come into contact with the human body.

SIXTH NERVE PARALYSIS FOLLOWING SPINAL ANÆSTHESIA.

Dr. Wendell Reber of Philadelphia has done good service in collecting cases of the ocular palsies associated with the induction of spinal anæsthesia by various solutions. He communicated his paper to the section of ophthalmology of the American Medical Association. Of the 36 cases brought together 33 showed involvement of the external recti alone, two exhibited incomplete ophthalmoplegia externa, and one presented fourth nerve palsy. Stovaine was the analgesic employed in 21 cases, novocaine in six, tropacocaine in three, and alypin in one. In the 27 cases in which the time of onset of the palsy is noted the average was ten days after the spinal analgesia was induced. In 26 cases five seem to have been transitory, lasting only five or six days. In one case eight days elapsed before single vision was restored, in another 12, and in three others 21, 22, and 23 days respectively. In one case recovery is noted after six months and in another after eight months, but in five at least the palsy persisted at the time of the report of the case. The pathogenesis of the complication offers a fertile field for conjecture. Nuclear hæmorrhages (Oppenheim) or other forms of hæmorrhage (Kalt) occurring at the time of injection fail to account for the latent period preceding the onset of the paralysis. Inflammation due to sudden outflow of cerebro-spinal fluid (Müller) and infectious meningitis (Blanluet and Caron) are causes which have been invoked, but are likely to attract little support. Schmidt-Rimpler draws attention to the resemblance to post-diphtheritic paralyses, an analogy suggestive of some form of toxæmia. Babcock of Philadelphia, who has personally induced nearly 1500 spinal analgesias, lays great stress on the purity of the fluid injected. The drugs commonly employed are somewhat unstable, especially in the presence of heat, so that boiling for purposes of sterilisation may set free undesirable or even toxic substances.

THE Local Government Board, to facilitate the prompt use of diphtheria antitoxin in the case of persons who may be attacked by diphtheria or exposed to the infection of the disease, have made an Order, under Section 77 of the Public Health (London) Act, 1891, sanctioning the provision by the councils of metropolitan boroughs of a temporary supply of diphtheria antitoxin and of medical attendance in connexion therewith.

PUBLIC HEALTH ADMINISTRATION IN HAMBURG.

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(*Continued from p. 505.*)

The Management of Infectious Diseases.

LAWS about health in Hamburg, as everywhere in Germany, may be either imperial or enacted by the local authority.

Imperial laws have declared seven of the notifiable diseases to be national dangers; these are cholera, plague, typhus fever, small-pox, yellow fever, leprosy, and anthrax. Every case, every suspicion even of a case of one of these diseases, must be *immediately* notified to the police. Local ordinances have defined the next class, which are to be notified within 24 hours of diagnosis. They are diphtheria, scarlet fever, typhoid, relapsing, and puerperal fevers, and, in addition, epidemic cerebro-spinal meningitis, infantile paralysis, whooping-cough, trachoma, measles, mumps, food poisoning, pemphigus neonatorum, farcy, dysentery, hydrophobia, and trichinosis. These notifications are compulsory; they are not paid for, but the notice forms are carried free through the post. Infectious cases, just like ordinary cases of illness, are removed, if necessary, to the general hospitals, where they are treated in isolation blocks. There is an ambulance service, which at all hours is ready to remove patients to the hospitals in rubber-tyred carriages appropriate to the particular injury or disease. I have particular pleasure in acknowledging my indebtedness to Dr. Hermann Sieveking, of the Medical Board of Hamburg, for the courteous and valuable help he gave me in my endeavours to learn how they deal with infectious disease and manage their public health problems in Hamburg.

Tuberculosis must be notified if it attacks people engaged in occupations which have relation to provisions. Further, all cases of tuberculosis are to be notified where the doctor thinks disinfection is required, e.g., if the patient has changed his address. The fresh cases of tuberculosis received into the hospitals are reported weekly to the police. Suspected sputum is examined free at the Hygienic Institute if the patient's name and address are given. If a positive result is obtained it is at once communicated to the doctor and at the end of the week all such cases are reported to the police. As the medical officer of health is a police official, these notifications are really made to him. The prevalence of tuberculosis has been diminishing ever since 1840, but they are not satisfied with the rate of decrease and hope shortly to establish a dispensary system on the lines which Dr. R. W. Philip has made well known in Edinburgh. Depôts for distributing sterilised, pasteurised milk have been established—each under the care of a lady health visitor who visits parents and advises them concerning the care of their infants. These depôts are making a little money as they also supply "humanised" milk and milk with infant foods according to the physician's prescriptions for each case. It is noted with interest that the fight for pure milk, initiated to reduce tuberculosis, has not resulted in any coincident reduction of infantile summer diarrhœa. If a district veterinary surgeon finds a cow with a tuberculous udder he must at once inform the district physician in order that the people getting its milk may be known, and a possible later development of tuberculosis be explained.

Small-pox and Vaccination.

Small-pox does not exist in Germany, except where brought in by immigrants. Every child must be vaccinated before Dec. 31st of the year following its birth. Parents not bringing their children to be vaccinated are fined or imprisoned. Vaccination is generally done in the early summer when life for both child and mother is easier, and she can more easily take the infant into the open air. I saw a vaccination station, a large imposing building. The most important entrance is reached by a slope made easy for perambulators; this led into a large hall with solid furniture and fittings capable of seating about a hundred mothers. The doctors sit on a dais in full view, with scores of asepticised lancets by them. They are instructed to have their hands sterilised as if for an operation, and afterwards they must report that they have complied. As the mother brings in her child she is given a leaflet containing advice such as: wash the child every day, take the child out for a walk daily, let no one come near it who has an ulcer, skin disease, or erysipelas. Only touch the vaccination spots with hands washed clean for the purpose or with new cotton or linen, and burn everything that has any discharge on it. Never put on wet or ointment dressings unless the doctor specially says so.

There are offices, conveniently fitted, for the doctors, and a stable outside for the calves which yield the vaccine. Vaccination has to be repeated in the twelfth year.

The St. Georg Hospital.

Near the vaccination station is the St. Georg Hospital (1380 beds) built in 1856 and entirely remodelled in 1905. It is in no sense a charity, but is maintained by the Krankenkasse, an insurance fund, to which all persons with less than £100 a year must subscribe weekly while in health. Its buildings are two storeyed cottages taking some 60 patients each. I saw one ward. It had an attractive appearance. The beds were closer together than we put them, but special attention is given to ventilation. For example, all the air entering the aseptic operation theatre is filtered, washed, and warmed. The operation rooms were in use, so I could not see them, but I was taken to the bath-house and found there mud, brine, and peat baths, douches, and sprays. The physician in charge, an enthusiast, was charmed to find someone glad to see his charges, and was most kind to me. He had a new electric-light bath with straight filament lamps, hot-air and steam baths. A patient was in a hot bath; his rectal temperature, taken by an electrical resistance thermometer, was being written down on a chart. Apparently his temperature rose at first and when it began to fall he was taken out. I was shown a steam and air jet which is used in treating rheumatic arthritis of joints. Next came the greatest novelty. A patient appeared with a secondary circinate rash all over his back. From a reservoir of air at three atmospheres came a jet carrying with it small seeds, like little beads but lighter, and they were played through a hose on the lesion, which was minutely bombarded with these little things. The machine was called a grandinator (Horace; Odes, 1, 2, 2,) and is the invention of this hospital. It acts by exciting hyperæmia. "Just like the steam spray," said the doctor; and I quite think he was right. Upstairs were the "water-beds," tanks 7 feet by 4 feet by 3 feet, in glazed bricks, full of water about 99° F., the temperature regulated automatically. They are for bad burns or bedsores—seven in all. In them, on indiarubber hammocks, lie the patients, who appear quite comfortable. Over each is a large wooden bed-table, with flowers, books, &c. I do not remember having seen a similar installation since I was in Vienna in 1887. The difference in 20 years was very marked. Those were of wood in a dark and not very agreeable room; these were on the first-floor with plenty of light, nickel plating, enamel paint, and glazed bricks.

I was taken next to the Pathological Institute. It was brilliant; tiled floors and glazed bricks everywhere; chemical, bacteriological, and histological laboratories, and a small lecture room for, say, 50 auditors. There is no university here with students, but I believe the director of the hospital and all the staff turn up about 1 P.M. daily. The triumph was the post-mortem room on the first-floor; eight or ten tables of enamelled fireclay, nickelled head-rests, and nickelled post-mortem instruments on each table, and those comfortable little tables for the display of organs they have at Brompton. And, above all, everything scrupulously, meticulously clean.

The Port of Hamburg.

The medical officer of the Port of Hamburg, Dr. Sannemann, most politely permitted his untiring assistants, Dr. Wolter Pechsen and Dr. Rudolphy, to take me round and show me everything I wished and had time to see. Personally I can never see enough of ships, they are all so interesting and each so different; but there is a limit to time, and these two officers most kindly—indeed, I think, eagerly—helped me to see in three days all that was possible of the port sanitary administration, and gave me as full an idea as they could of their work outside the office.

First, of forecastles. In ships built since 1905 each sailor must have 120 cubic feet on a deck 6 feet 5 inches high,

unless he is lodged in a crew space specially well ventilated, when only 105 cubic feet need be given him. He must also have 16 superficial feet allotted to him in his crew space, unless a messroom is provided for him elsewhere, in which case he need only have 13·5 square feet. I saw the forecastles at an unfortunate time, with everybody busy, as the ships were preparing for sea. They struck me as well-lighted and tidy. In one sailing ship there were three rows of bunks; this is allowed if the berth fittings are of iron and can be taken down. In a newer ship the bed places, in pairs, projected free into the forecastle like the teeth of a comb, so there was air all round the sleeper. This, I think, is a great improvement. There were lockers in all crew spaces, but no food is kept in them. Separate wash places are common but not universal.

The existing regulations for emigrants date from 1898. Ships that have carried evil-smelling cargoes have to be cleaned and inspected before they are allowed to carry passengers. I was taken to such a ship which had last carried petroleum. Another inspector was present, obviously the equivalent of our emigration officer, and between them it was settled what procedure was necessary.

Before going to sea every ship has its medical equipment inspected. There must be a place for a hospital in every ship going abroad. An unoccupied cabin is good enough in a sailing ship for example, but it *must* be unoccupied. All medicines, hospital equipment, &c., must be provided for in accordance with the size of the ship. Drugs are looked over —e.g., the date of the antidiphtheritic serum noted, and the instruments are examined (generally a very full equipment and supplied, I should imagine, by the company). A microscope and a bacteriological outfit must be carried by large passenger ships for the diagnosis of malaria, plague, typhoid fever, &c. Each emigrant must have 100 cubic feet of space on his sleeping deck, and for every hundred persons there must be 350 cubic feet of hospital accommodation, with two water-closets and a bathroom appurtenant. In one ship I saw a third cabin some 18 feet by 12 for use as an operating theatre or as a spare ward.

The Hamburg-American line takes thousands of emigrants abroad yearly. While in Hamburg the emigrants are lodged in a little village on an island where they are cleaned and kept under discipline for a time before they embark. The disinfecting station is quite complete. Emigrants come in and surrender their clothes at one end to the disinfectors (two current steam, one formalin at 80° C.), and wash themselves for an hour, after which they receive back their now disinfected clothing. The people looked clean, also they seemed quite satisfied. They are boarded either at 2*s.* or 3*s.* 6*d* daily. There is a post-office for them, also shops and churches. Each nationality is for convenience lodged in a different street. All the waste water from this inspection establishment is disinfected with chloride of lime before discharge into the Elbe.

Plague Prevention.

In this, as in every other port, the great question is, What are we to do about plague? How are we to kill the rats infected with the fleas which communicate the disease? Most authorities attack the rats with sulphurous acid, but Hamburg and the Hamburg-American line prefer carbonic oxide. Bremen, only 60 miles away, and the great North German Lloyd Steamship Company pin their faith to sulphurous acid, and so the discussion between the cities waxes warm. Bremen holds that sulphurous acid at a strength of 2½ to 4 per cent. destroys rats, insects, and plague bacilli, but does not damage cargoes. Besides there is no risk of poisoning men with it, and results show that it is effective against plague, for there have been no plague cases or plague rats found in N.D L. ships in recent years. Hamburg rather neglects this last argument but asks: "Supposing this gas at 4 per cent. does not damage cargoes, will it at that strength certainly kill all the rats?" There was the Algerian case in which as the rats lived after a 4 per cent. fumigation an 8 per cent. concentration had to be used, the cargo was damaged, the flour would not bake (sulphurous acid remaining in the flour inhibiting the growth of yeast). Even if carbonic oxide kills only the rats, at any rate it does kill them all, and the insects and plague germs may be attacked later after discharge of the undamaged cargo. The Hamburg regulations prevent risk to men, though about four people were killed in the early days. This method is just as cheap as the sulphurous method. It is claimed to be thorough, while the other is alleged to be a "symbolische Handlung," a merely ritual observance and "Scheinmanöver"—i.e., "eyewash."[1]

I was taken to the small tug which has been fitted as a disinfecting ship on the method of Nocht and Giemsa. Here coke is burned with restricted air-supply in order to produce smoke containing a maximum of carbonic oxide. Steam is raised incidentally as a by-product. There is a very neat arrangement for analysing the smoke; when I saw it 79 per cent. was nitrogen of course, and 10 per cent. carbonic acid, and 11 per cent. carbonic oxide. The steam drives a fan, which forced the cooled and washed carbonic oxide into the ship through a junction box, from which four great hoses take it into each of the holds. It takes four hours to fill the ship; for four hours the holds are closed, and during this period they blow air through the ship; afterwards they leave the hatches off for 12 hours, when discharge of cargo is commenced. Thereafter disinfection with sulphur or formalin is done if necessary. Meanwhile, the ship's company are disinfected in the tug, where there are a current steam disinfector and six bath compartments. The waste water is collected in a tank and boiled before it is discharged into the Elbe. This disinfection is only compulsory for ships in which rats, certified by the Hygienic Institute to be plague-infected, have been found. If, when this occurs, any cargo has been already discharged it must now be disinfected, as must also any ship which has received portions of this cargo. Methods here are remorselessly thorough.

The Hospital for Tropical Diseases and the Attached School.

Dr. H. Werner was good enough to show me this hospital and the school. The wards were bright and comfortable, rather hot I thought them, but they are kept so because the patients have just come from the tropics. The beds had wire mattresses, and, like the chairs, had galvanised iron frames. The clinical sheets give about an inch to a day, and the night hours are distinguished by a faint yellow wash. Temperature (curve in black) is taken by routine four times daily and oftener in important cases. Pulse curves are marked in red. Urine, its amount and specific gravity, is always logged once at least. Albumin, if present, is marked by a blue chalk pencil ring, bile pigment by green, and sugar by red rings. The character of the parasites found microscopically in the blood is diagrammatically represented on the occasion of each examination, and the percentage of hæmoglobin is noted once at least. The characters of the blood cells, the percentages of polymorphs, &c., are noted. In cases taking quinine a statement is made as to whether or no the urine gives the quinine reaction to the biniodide of potassium and mercury which proves absorption. (I did not see this reaction, as unfortunately there was no clinical material available at the moment.) The charts are large, about twice foolscap size, and in this manner are made descriptive and very interesting. For malaria they give 3 grains of quinine hydrochloride five times every day for eight days, then intermit for two days and give another eight days' course, repeating this with successive intervals of 3, 4, 5, 6 days, until, at the end of two months the patient is cured—that is, unless he comes from the borderland of Bolivia and Brazil, where the infection seems particularly resistant, and not defeated even by double doses of quinine. Some 60 of these cases, tertian or double tertian, had been seen. Dr. Werner is to read a paper on these cases at the German Colonial Congress in Berlin in October. Quinine is given in the prettiest oval capsules, made by Zimmer of Leipzig. They are in two halves pleated together along their equator. When they are put in water the capsule dehisces, and so when swallowed the hydrochloride is quickly exposed to the action of the gastric juice. The adjacent tropical medicine school is too small and is shortly to be rebuilt. The expense is to be borne mainly by Imperial authorities, but the local funds will furnish £650,000.[2] I may specially mention one thing which struck my attention—a particularly striking set of parasites, tænia, distoma, arranged on 45 microscopic slides, placed side by side in three rows, and displayed by an electric light, which, to prevent damage to the exhibits, went out in 15 minutes, or earlier if the case became too hot.

[1] Archiv für Schiffs- und Tropen-Hygiene, pp. 205-6, April, 1910.
[2] Ibid., May, p. 322.

While I was over in Hamburg on leave everyone I met was politely eager to ensure my seeing everything that was possible. If I may single out any one act as specially striking in its hospitality, it was the offer made to let me take, even back to England, any book I wanted from the library of the Hygienic Institute if I would return it in a fortnight. This seemed to argue a very high devotion to the advancement of science.

MOTORING NOTES.

BY C. T. W. HIRSCH, M.R.C.S. ENG., L.R.C.P. LOND.

The Darracq Two-seated Doctor's Model.

THE Darracq two-seated doctor's model deserves attention. It is not a large car, though quite large enough for a medical man, and has ample power; and yet the tax for the profession is but £2 2*s*. It has, what so many would-be motorists fancy, a four-cylinder motor of the monobloc type, thus ensuring smooth running and silence. To all this is added the important feature, at any rate to most medical practitioners, that, though a good, it is also a cheap car. With the leading constructional features and principles of the chassis probably most of my readers are familiar, for when the first model was put on the market, being impressed with the description that was sent to me, I obtained one for a three days' test, and gave the results of my experience with the car in THE LANCET of Oct. 30th, 1909. The main points are simplicity, accessibility, and a reasonable cheapness, and these have been obtained without in any way sacrificing the quality. The frame is stamped from a single sheet of steel, and a flange on the outside serves to receive the carriage work, which is thereby enabled to be hung some four inches lower—an important point in these days when low bodies are so popular. On the inside the steel is pressed to form an underframe, which is continued to the rear of the vehicle, so providing a complete and perfect undershield, and protecting the mechanism from mud and dust. The bore of the new model is now 80 mm. and the stroke 120 mm., thus bringing the car into the (to doctors) £2 2*s*. tax class. The dashboard is free from the usual unsightly oil-box, lubrication being by a pump in the crank-case operated by the cam shaft which lifts the oil from a sump beneath and maintains a constant level of oil in the crank chamber. Cooling is by a centrifugal pump driven off the half-time shaft. The carburettor was fully described in my previous account, but now the petrol enters from below, thus ensuring a constant head of petrol in the tank, even when nearly empty. The accessibility of the gear-box has been carefully studied, and neither levers nor rods cross the box. The gears are controlled by a side lever working in a gate quadrant, and the whole of the selector mechanism is enclosed in the gearbox, and therefore works in oil, enabling a particularly easy and silent change of speed to be made. A great improvement is that the old dog clutch form of direct drive is now replaced by the efficient method of an internal toothed wheel. The control is by means of a foot accelerator. Ignition is by a Bosch magneto.

Recently a Cornish medical friend bought one of these cars, and as I was anxious to put one through its paces I was delighted when he kindly invited me to take delivery of the car and drive him as far as Exeter. The arrangement was that the owner should come up by the night train arriving at Paddington at 6.30 A.M., and that I should meet him in the car, the makers sending the car down to pick me up at Woolwich so that I should get there in time. They certainly did that, for it was hardly 5 A.M. when I was aroused by the car at my gate. I have not as a rule found manufacturers so punctual. The roads were clear and the Darracq chauffeur certainly gave me a demonstration of what this undoubtedly easy riding, comfortable machine could do. In fact, though I have on many occasions and in all sorts of cars done the journey to town, I must say that I have never performed it in anything approaching the time, and, what is more, I do not think that I should like to do it again at the rate which we did it in. As a result, I had over an hour to wait, during which time I had ample opportunity to inspect the machinery and body. The latter struck me as ideal for the medical motorist. The screen is of the Cromwell pattern, and the high side doors are certainly a complete protection. The victoria hood, which could be easily lowered, came well over the front glass and gave complete cover to the occupants, and with it up there was a marked absence of draught—an important point for a doctor, who may have to spend hours in the car in all sorts of weather, and, as already mentioned, this hood could be put up and down almost like an umbrella, without disturbing the occupants. The only factor I rather objected to was that both the brake lever and change speed were outside the door. This, of course, gives a neater look, but it is not as convenient for the driver, especially if it is raining. Messrs. Darracq seemingly have discovered this, and I understand that in future the door will be between the two levers, the change speed being on the inside, as is the case with their standard side-entrance four-seater bodies. The seats are well upholstered, are tilted slightly up in front, which certainly tends to the comfort of the occupants, and also fit properly. Those who have spent hours hitching about with cushions constantly sliding forward will appreciate this. There is room, too, for the driver to get out without his neighbour having to descend, which is the next best arrangement to making the door on the driver's side available for exit. Personally, I trust that some day this will be possible, though with side gate change and hand brakes the removal of the blocking these parts cause presents a problem difficult of solution. Perhaps, in the near future, the gate change will be on the driver's left. I suppose a little practice would enable one to work with that lever there: it is the position adopted on Lanchester cars. And while dreaming of the motoring doctor's ideal, the question of starting from the driver's seat should be considered; for a very little extra the Bosch self-starting magneto could be fitted in lieu of the one supplied with the car, or instead one of the foot pedal methods of cranking the engine.

Messrs. Darracq had only received the car on the previous afternoon from the coachbuilders, and as various extras had to be fitted it was sent to fetch me without any previous trial run. Of this I had a good proof, as prior to reaching Newbury, though the engine was pulling well, the progress was not as rapid as we anticipated. Feeling the fly-wheel revealed the cause; it was burning hot, which demonstrated that the clutch was slipping. This slight functional disorder, which is rather prone to occur with new cars when the leather on the male clutch member may be dry, is easily rectified, the clutch spring being contained in a casing which has a left-handed thread, so by rotating it to the left the tension of the spring is increased, and a bolt, which has to be slackened to do this, when tightened up again catches in a notch, and so keeps the casing from slipping. When making this adjustment, it is also essential to see that the withdrawing fork has a little play, otherwise, though the spring may be sufficiently strong, the fork may prevent the male member from going right home. As soon as this very slight adjustment had been made the car was quite as rapid as we desired, and with the accelerator pedal right down, even too rapid to conform to the legal regulations of the road. Frequently with engines of this size there is some little faltering if a hill is attempted on the direct drive, but with this car, though it would have been excusable, it did not take place: it was like a much higher horse-powered vehicle and always rose to the occasion. In fact, it took the incline out of Maidenhead easily on the top, and as we had to slow down for traffic as we approached the hill this was a good proof of its power and the nicety with which it could be controlled. At Newbury we left the good surfaced main road and took the Highclere and Dyley Hill route to Andover. This included some ascents of 1 in 14, which were mounted on the top gear, and three of 1 in 10 were easily negotiated on the second speed. I attribute this to the fact that the carburettor suits the engine it feeds, thus permitting immediate response to the control. These hills, as well as some we encountered near Mere and Wincanton, also showed how smooth the clutch was when properly adjusted, and yet in spite of that how positive was its grip. From Andover to Salisbury the road was excellent. In the town I had a few occasions to use the brakes, and found those on the driving wheels and the one on the propeller shaft immensely powerful and yet soft in action. While filling up with petrol here, as we had done over 100 miles, we felt the back axle bearings, which on all new cars with the plain type need watching during the first few days so as to make sure

that they are lubricated, and though they were quite cool, we took the precaution to inject a little thick oil, and then to refill and screw up tightly the grease lubricators. I know that a good many advocate ball bearings, but white metal ones seem just as good if only they are watched and kept well oiled, until the shafts have well bedded themselves, which usually occurs after a few hundred miles' running. After Salisbury, I did what I have, I must confess, done before, and what so many motorists do—I lost my way, and instead of making for Shaftesbury we found ourselves on the hills near Hindon, and that, too, with almost tropical rain, which accompanied us to nearly as far as Exeter. In spite of the heavy roads the car took many of the hills on the top speed, and on reaching our destination we felt more than pleased with the running, which for a maiden trip was very good.

What an ordinary owner wants to know is whether the cheapness of the car makes its presence felt in rapid depreciation or in actual breakdowns. From my actual experience with this make of car, and from the testing I gave it on the 200-mile run to Exeter, I am of opinion that it is in every way a sound piece of engineering, well designed and well built, and worthy of the consideration of a doctor in search of a mount.

The Darracq Doctor's Coupé.

In addition to the doctor's model just described, Messrs. Darracq supply their 14–16 h.p. motor with a new type of body, "the Coupé." This is a two-seater, with a leather hood that comes forward and can be fixed to the frame that supports the front glass. This glass is hinged to the top of the frame and opens forwards, and thus in wet weather a clear view can be obtained and still the rain can be kept out. The high side doors contain windows which can be drawn up and which then fill in the space between the hood and the screen frame. Thus the driver can be absolutely shut in and obtain complete protection, while in fine weather the car can be opened in a few seconds. A good point is that the second seat is farther back than the driver, and so the driver can get out on the off side without any need of disturbing the other occupant. The change-speed lever and hand-brake are both inside the door, and are so arranged that anyway an averaged-sized driver can get out on his own side. I used one of these cars and came to the conclusion that they are most comfortable and also serviceable for both town and country use for the doctor who drives his own machine. In fact, as some of my patients expressed it, it is a typical and ideal "pill box." The body, too, is light, and does not in any way interfere with the car's liveliness, or its ability to mount average gradients on the top gear. While in town I was able easily to creep slowly in traffic on the direct drive, and when an opportunity presented itself to get away rapidly. I must say, too, that the windows sliding into the interior of the door, though slightly adding to the weight, appeared to me much better than the type in which, to obtain a few pounds less weight, they are detachable and carried in a box at the back of the car.

The Motor Stethoscope.

The stethoscope can be employed with advantage in locating abnormal motor sounds. This fact has already been alluded to in these columns. Many a motor, which otherwise seems to be perfect, may have a disagreeable tap. Taking the engine apart, though interesting, is laborious, and if given out to be done may be costly, and this can frequently be saved if the trouble can be located and diagnosed before disturbing the parts. To do this the motor stethoscope has been introduced by Messrs. Brown Brothers, Limited. It is much like the special one used in my student days at the hospital, made with extension rods, so that the hearer was beyond the longest jump of even an East-end active flea, only here it is made long so that it may reach any part of the mechanism. Over a motor valve every scrape in the action of the valve can be heard; over a ball-bearing the normal roar is typical, while if a ball be cracked the adventitious noise is beyond mistake. Those who do not like to employ their professional instrument for motor diagnosis will find the one sold by Messrs. Brown Brothers most useful and accurate.

Repairs and Hands.

The one great objection to doing motor repair jobs is that it is not good for the appearance of one's hands, which is, of course, a serious matter for professional men. So I am sure that all motor enthusiastic colleagues will welcome the "Flash Antiseptic Hand Cleaner" which is sold by Messrs. Brown Brothers, Limited, and which is certainly very good for cleansing the hands from the grease and dirt that are so unpleasantly adherent after attending to a motor.

THE MEDICAL LIBRARY ASSOCIATION.

THE annual meeting of the Medical Library Association was held in the Library of the Royal College of Surgeons on July 26th, under the presidency of Professor W. Osler, F.R.S. After the transaction of some formal business the future work of the association was discussed, and amongst other things it was decided to set in hand at once the preparation of a list of periodicals in the British medical libraries, offers of assistance having been received from all parts of the kingdom.

On July 27th an opening meeting was held in the Old College of Science, South Kensington.

Professor OSLER in a brief speech made reference to the different types of medical libraries in the British Isles, and pointed out what valuable work the association might render in the way of bringing about greater coöperation amongst them. He appealed to those present to do what they could to increase the number of members of the association.

Mr. VICTOR G. PLARR (Librarian, Royal College of Surgeons of England) read a paper on the Catalogue of the College. He began by stating various reasons why it was not easy for the librarian to write on library work. Librarianship was the quintessence of obscure and faithful routine, and the good librarian was not conscious of himself or prone to analyse an almost instinctive set of practices. The last printed supplement to the Author Catalogue of the Library of the Royal College of Surgeons was issued in 1860, and then for many years, as the library rapidly increased, a rough card catalogue was kept by old Dr. Chatto, until the present librarian's immediate predecessor, Mr. James Blake Bailey, determined to catalogue the whole library (which now numbers more than 60,000 volumes). He entered light-heartedly on what has proved an enormous task, extending over some 20 years, but now practically completed, at least from the point of view of the modern medical profession and modern research. During the last 10 years, more than 47,000 catalogue cards, some of which are necessarily voluminous, have been written out. These are in most of the European languages. The ideal cataloguer must be a logician, a linguist, especially a Latinist and German scholar, and much else besides, as no scrap of knowledge comes amiss when dealing with scientific bibliography. His work admits of no sensational triumphs, but he has the satisfaction of building a small part in the great fabric of civilisation. He makes few inventions. One of the few recently introduced in the College library is a Catalogue of Literatures or Bibliographies, which now numbers some 15,000 entries, and has proved of use to researchers. Mr. Plarr illustrated his paper with anecdotes bearing on literary etiquette and routine, and at the close of it quoted passages from Bishop Hall and a modern medical poet, Dr. John Todhunter, both of whom have eloquently recorded their impressions of a great collection of the works of dead authors.

A second session of the association was held on July 28th, under the chairmanship of Mr. PLARR.

Mr. C. R. HEWITT (Librarian, Royal Society of Medicine), in a paper on the Organisation of a Medical Library, emphasised the necessity of having in London a library with accommodation for all the medical literature published, both present and past. He also dealt, in a very practical way, with such important subjects as staff and readers, principal works of reference, author and subject catalogues, arrangement of books, &c.

Mr. H. M. BARLOW (Assistant Librarian, Royal College of Physicians of London) showed how medical bibliography in Great Britain had been sadly neglected, and it was with the laudable intention of increasing the utility of medical libraries in this country that the Medical Library Association had been formed. The inception of a movement of such far-reaching importance would perhaps not meet with the sympathy and support it deserved. Two questions might be raised—namely, Of what use to our library can such an organisation be? and, Considering the limitations of its

scope, medical libraries being few, with what success is it likely to be attended? The answers to these questions would be found in a short account of the rise and progress of the Association of Medical Librarians of the United States, and of the results accomplished by its exchange. The relative positions of Great Britain and the United States in regard to the number of medical libraries already in active existence were also considered. Details cannot be given in this abstract, but Mr. Barlow's deductions were as follows. Taking as criteria (1) the rise and progress of the medical library movement in the United States, and (2) the comparatively extensive resources of medical literature in Great Britain, Mr. Barlow considered that we had a clear and conclusive answer to the question, With what success is it likely to be attended? The Exchange Bureau in the United States was a successful working organisation. Material benefits were derived from it. The adoption of a similar exchange by the Medical Library Association was a sound and useful object, and should the merits of the association rest merely on the strength of the material benefits it was likely to offer, rather than on the more worthy principle of stimulating the medical library movement generally, there was a satisfactory answer to the former question, Of what use to our library can such an organisation be? Mr. Barlow also dealt with another of the important objects of the association, the increasing of facilities for reference work.

Mr. A. L. CLARKE (Assistant Editor and Cataloguer, Royal Society of Medicine) presented a valuable paper on Abstracts and Extracts in General and Scientific Literature. He dealt in turn with general, educational, scientific, and legal literature. Brief abstracts, giving just enough information, should contain (1) the author's opinion in a few words; (2) an outline of statistics (if given); and (3) a concise description of the method detailed, whether of a laboratory process, of a technical or manufacturing process, or that of a particular medical treatment or a surgical operation. Anything less than that was valueless. More than once he had seen the following annotation in a review of current literature, "The title of the paper sufficiently indicates its contents," or something to that effect, and no more. That was the *reductio ad absurdum* of abstracting.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 77 of the largest English towns 8678 births and 3603 deaths were registered during the week ending August 13th. The annual rate of mortality in these towns, which had been equal to 11·3 and 10·7 per 1000 in the two preceding weeks, rose again to 11·1 in the week under notice. During the first six weeks of the current quarter the annual death-rate in these towns averaged only 11·1 per 1000, and in London during the same period the death-rate, calculated on the probably over-estimated population, did not exceed 10·5 per 1000. The lowest reported annual rates of mortality during last week in these 77 towns were 3·5 in Leyton, 5·1 in Walthamstow, 5·3 in Hornsey, and 5·5 in Devonport; the rates in the rest of the 77 towns ranged upwards to 17·8 in Sunderland, 18·8 in Barrow-in-Furness, 20·3 in Tynemouth, and 20·7 in Bootle. In London the reported death-rate last week was again so low as 10·3 per 1000. The 3603 deaths registered last week in the 77 towns showed an increase of but 127 upon the exceptionally low number in the previous week, and included 434 which were referred to the principal epidemic diseases, against 353 and 347 in the two preceding weeks; of these 434 deaths, 192 resulted from diarrhœa, 95 from measles, 79 from whooping-cough, 30 from diphtheria, 26 from scarlet fever, and 12 from enteric fever, but not one from small-pox. The mean annual rate of mortality from these epidemic diseases in the 77 towns last week was equal to 1·3 per 1000, against 1·1 in each of the three preceding weeks. No death from any of these epidemic diseases was registered last week in Walthamstow, Southampton, Plymouth, Norwich, Northampton, Hornsey, or in ten other smaller towns; the annual death-rates therefrom ranged upwards, however, to 4·4 in Bootle, 4·5 in Wigan, 4·6 in Tynemouth, and 4·9 in Barrow-in-Furness. The deaths attributed to diarrhœa in the 77 towns, which had been 102, 120, and 115 in the three preceding weeks, rose last week to 192; the highest annual rates from this cause during the week were 2·4 in Burnley and in Middlesbrough, 2·6 in Rhondda, 3·4 in Wigan, and 4·4 in Bootle. The 95 fatal cases of measles showed a further slight increase upon the numbers in the two preceding weeks, and caused the highest annual rates of 1·3 in Sunderland, 1·8 in Tynemouth, and 4·1 in Barrow-in-Furness. The 79 deaths from whooping-cough exceeded by but 1 the number in the previous week; this disease caused a rate equal to 2·8 in Tynemouth. The 30 deaths from diphtheria showed a decline of 3 from the number in the previous week, and included 6 in London, 4 in Manchester, 3 in Hull, and 2 both in Birmingham and in Leeds. The 26 fatal cases of scarlet fever, showing a slight increase upon the low numbers in recent weeks, included 2 each in Portsmouth, Stoke-on-Trent, Manchester, and Sheffield, and 3 in Rhondda. The 12 deaths referred to enteric fever were fewer by 3 than those in the previous week, and included 4 in London and 2 in Nottingham. The number of scarlet fever patients under treatment in the Metropolitan Asylums and in the London Fever Hospital, which had been 1563 and 1523 in the two preceding weeks, had further declined to 1490 on Saturday last; 163 new cases of this disease were admitted to these hospitals during last week, against 173, 179, and 165 in the three preceding weeks. No case of small-pox was under treatment in the Metropolitan Asylums at the end of the week. The 962 deaths registered in London during last week included 113 which were referred to pneumonia and other diseases of the respiratory system, showing a decline of 11 from the number in the previous week, and were 14 below the corrected average number in the corresponding week of the five years 1905–09. The causes of 23, or 0 6 per cent., of the deaths registered during the week in the 77 towns were not certified either by a registered medical practitioner or by a coroner. All the causes of death registered during the week were duly certified in London, Leeds, Bristol, West Ham, Bradford, Newcastle-on-Tyne, Nottingham, and in 55 other smaller towns; the 23 uncertified causes of death in the 77 towns included 3 in Liverpool, and 2 each in St. Helens, Bury, Huddersfield, Sheffield, Hull, and South Shields.

HEALTH OF SCOTCH TOWNS.

In eight of the principal Scotch towns 836 births and 460 deaths were registered during the week ending August 13th. The annual rate of mortality in these towns, which had been equal to 12·7 and 12·3 per 1000 in the two preceding weeks, rose again to 12·7 in the week under notice. During the first six weeks of the current quarter the death-rate in these towns averaged 12·4 per 1000, and exceeded by 1·3 the mean rate during the same period in the 77 largest English towns. The annual death-rates last week in these eight Scotch towns ranged from 7·8 and 9·5 in Leith and Paisley, to 19·8 in Greenock and 21·0 in Perth. The 460 deaths from all causes in the eight towns last week showed an increase of 15 upon the number in the previous week, and included 58 which were referred to the principal epidemic diseases, against 58, 46, and 44 in the three preceding weeks; of these 58 deaths, 35 resulted from diarrhœa, 9 from whooping-cough, 4 from measles, 4 from diphtheria, 3 from scarlet fever, and 3 from "fever," but not one from small pox. The mean annual rate of mortality from these epidemic diseases in the eight towns last week was equal to 1·6 per 1000, against 1·3 from the same diseases in the 77 English towns. The deaths in the eight towns attributed to diarrhœa, which had been 20 and 26 in the two preceding weeks, further rose to 35 last week, of which 21 occurred in Glasgow, 5 in Dundee, and 3 both in Edinburgh and in Aberdeen. Six of the 9 fatal cases of whooping-cough, and 2 each of measles, scarlet fever, and diphtheria, were returned in Glasgow. The 3 deaths referred to "fever" in the eight towns corresponded with the number in the previous week, and included 2 in Glasgow and 1 in Dundee; 2 were certified as enteric fever and 1 as cerebro-spinal meningitis. The deaths referred to diseases of the respiratory system in the eight towns, which had been 61 and 59 in the two preceding weeks, further declined to 47 in the week under notice, and were 1 below the number in the corresponding week of last year. The causes of 16, or 3·5 per cent., of the deaths in the eight towns last week

were not certified or not stated; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent.

HEALTH OF IRISH TOWNS.

In 22 town districts of Ireland, having an estimated population of 1,151,790 persons, 604 births and 346 deaths were registered during the week ending August 13th. The mean annual rate of mortality in these towns, which had been equal to 16·2 and 15·3 per 1000 in the two preceding weeks, rose again to 15·7 in the week under notice. During the first six weeks of the current quarter the annual death-rate in these Irish towns averaged 16·0 per 1000; the mean rate during the same period did not exceed 11·1 in the 77 largest English towns and 12·4 in the eight principal Scotch towns. The annual death-rate during last week was equal to 17·9 in Dublin, 13·6 in Belfast, 15·1 in Cork, 14·4 in Londonderry, 10·9 in Limerick, and 27·3 in Waterford; the mean annual death-rate last week in the 16 smallest of these Irish towns was equal to 15·5 per 1000. The 346 deaths from all causes in the 22 town districts last week showed an increase of but 9 upon the low number returned in the previous week, and included 46 which were referred to the principal epidemic diseases, against 32 and 35 in the two previous weeks; these 46 deaths were equal to an annual rate of 2·1 per 1000; the rate last week from the same diseases did not exceed 1·3 per 1000 in the 77 English towns and 1·6 in the eight Scotch towns. The 46 deaths from these epidemic diseases in the Irish towns last week included 34 from diarrhœa, 6 from measles, 4 from whooping-cough, and 1 each from scarlet fever and simple fever; but not one either from small-pox, or diphtheria, or enteric fever. The deaths attributed to diarrhœa in the 22 towns, which had been 9 and 16 in the two previous weeks, further rose to 34 last week, of which 14 occurred both in Dublin and in Belfast. Four of the 6 fatal cases of measles were returned in Belfast, and 3 of the 4 deaths from whooping-cough in Dublin. The death from scarlet fever occurred in Dublin. The deaths in the 22 towns last week included 39 which were referred to pneumonia and other diseases of the respiratory system, against 59 and 44 in the two preceding weeks. The causes of 10, or 2·9 per cent., of the deaths registered last week in the Irish towns were not certified; in the 77 English towns the proportion of uncertified causes of death last week did not exceed 0·6 per cent., while it was equal to 3·5 per cent. in the eight Scotch towns.

VITAL STATISTICS OF LONDON DURING JULY, 1910.

In the accompanying table will be found summarised complete statistics relating to sickness and mortality in the City of London and in each of the metropolitan boroughs. With regard to the notified cases of infectious diseases, it appears that the number of persons reported to be suffering from one or other of the nine diseases specified in the table was equal to an annual rate of 4·1 per 1000 of the population, estimated at 4,872,702 persons in the middle of the year. In the three preceding months the rates were 4·2, 3·9, and 4·0 per 1000 respectively The lowest rates last month were recorded in Fulham, Chelsea, the City of Westminster, Hampstead, Hackney, Holborn, and Greenwich; and the highest rates in Hammersmith, St. Pancras, Finsbury, Bethnal Green, Poplar, Bermondsey, Lewisham, and Woolwich. Two cases of small-pox were notified during the month, one belonging to Shoreditch and one to Woolwich. The prevalence of scarlet fever slightly exceeded that recorded in either of the two preceding months; this disease was proportionally most prevalent in St. Pancras, Poplar, Bermondsey, Lambeth, Deptford, and Lewisham. The Metropolitan Asylums Hospitals contained 1530 scarlet fever patients at the end of last month, against 1489, 1422, and 1358 at the end of the three preceding months; the weekly admissions averaged 190, against 183, 177, and 180 in the three preceding months. Diphtheria also was more prevalent in July than it was in May or June; among the several boroughs this disease showed the greatest proportional prevalence in Hammersmith, Stoke Newington, the City of London, Bethnal Green, Bermondsey, Greenwich, Lewisham, and Woolwich. There were 613 diphtheria patients under treatment in the Metropolitan Asylums Hospitals at the end of last month, against 794, 734, and 673 at the end of the three preceding months; the weekly admissions averaged 85, against 75, 73, and 80 in the three preceding months. Enteric fever was slightly more prevalent than it had been in other recent months; the greatest proportional prevalence of this disease last month was recorded in Hammersmith, the City of Westminster, St. Marylebone, Hackney, Stepney, Southwark, and Camberwell. The number of enteric fever patients under treatment in the Metropolitan Asylums Hospitals, which had been 66, 60, and 46 at the end of the three preceding months, had further declined to 45 at the end of last month; the weekly admissions averaged 6, against 8 in each of the two preceding months. Erysipelas was proportionally most prevalent last month in Kensington, Finsbury, Bethnal Green, Poplar, Bermondsey, and Camberwell. The 23 cases of puerperal fever notified during the month included 4 in Bethnal Green, 3 in Islington, and 2 each in St. Pancras and Wandsworth. Of the 9 cases notified as cerebro-spinal meningitis, 2 belonged to Stepney.

The mortality statistics in the table relate to the deaths of persons actually belonging to the several boroughs, the deaths occurring in institutions having been distributed among the boroughs in which the deceased persons had previously resided; the death-rates are further corrected for variations in the sex and age constitution of the population of the several boroughs. During the four weeks ending July 30th the deaths of 3693 London residents were registered, equal, to a corrected annual death-rate of 10·4 per 1000; in the three preceding months the rates were 14·0, 12·4, and 10·6 per 1000. The death-rates last month ranged from 6·6 in Greenwich, 8·0 in Hampstead, 8·4 in Lewisham, 8·6 in Wandsworth, and 8·9 in Chelsea and in Hackney, to 12·8 in Finsbury, 13·4 in Southwark, 13·6 in Shoreditch, 13·7 in Bermondsey, 14·0 in Holborn, and 14·3 in Poplar The 3693 deaths from all causes included 314 which were referred to the principal infectious diseases; of these, 126 resulted from measles, 19 from scarlet fever, 22 from diphtheria, 81 from whooping-cough, 8 from enteric fever, and 58 from diarrhœa, but not any from small-pox, from typhus, or from ill-defined pyrexia. The lowest death-rates from these infectious diseases last month were recorded in Kensington, the City of Westminster, Hackney, Holborn, Wandsworth, and Greenwich; and the highest rates in Paddington, St. Pancras, Stoke Newington, Shoreditch, Southwark, Bermondsey, and Camberwell. The 126 fatal cases of measles slightly exceeded the corrected average number for the corresponding period of the five preceding years; this disease was proportionally most fatal in Chelsea, St. Pancras, Shoreditch, Southwark, Bermondsey, and Camberwell. The 19 deaths from scarlet fever were equal to only one-half of the corrected average number; of these 19 deaths, 3 belonged to Camberwell, and 2 each to Paddington, St. Pancras, Poplar, Lambeth, and Lewisham. The 22 fatal cases of diphtheria were 13 fewer than the corrected average number, and included 5 in Lewisham, and 2 each in Hampstead, Islington, Southwark, Battersea, and Camberwell. The 81 deaths from whooping-cough were equal to the corrected average number for the corresponding period of the five preceding years; the greatest proportional mortality from this disease was recorded in Paddington, Hampstead, Stoke Newington, Holborn, Shoreditch, and Stepney. The 8 deaths from enteric fever were 5 below the corrected average, and included 2 in Islington. The 58 fatal cases of diarrhœa were only about one-third of the corrected average number in the corresponding period of the five preceding years; this disease was proportionally most fatal in Paddington, Hammersmith, Fulham, Shoreditch, and Poplar. In conclusion, it may be stated that the aggregate mortality in London last month from these principal infectious diseases was nearly 31 per cent. below the average.

UNIVERSITY INTELLIGENCE.—In succession to Mr. E. C. C. Baly, who has been appointed professor of chemistry in the University of Liverpool, Dr. R. H. Aders-Plimmer and Dr. W. B. Tuck have been appointed teachers of chemistry to medical students at University College, London. Mr. H. J. Page has been appointed demonstrator in chemistry and physiological chemistry to medical students. Vacation courses in chemistry, physics, biology, anatomy, and physiology for medical students begin on Sept. 1st.

ANALYSIS OF SICKNESS AND MORTALITY STATISTICS IN LONDON DURING JULY, 1910.

(Specially compiled for THE LANCET.)

CITIES AND BOROUGHS.	Estimated population in the middle of 1910.	NOTIFIED CASES OF INFECTIOUS DISEASE.											DEATHS FROM PRINCIPAL INFECTIOUS DISEASES.											
		Small-pox.	Scarlet fever.	Diphtheria.*	Typhus fever.	Enteric fever.	Other continued fevers.	Puerperal fever.	Erysipelas.	Cerebro-spinal meningitis.	Total.	Annual rate per 1000 persons living.	Small-pox.	Measles.	Scarlet fever.	Diphtheria.*	Whooping-cough.	Typhus fever.	Enteric fever.	Other continued fevers.	Diarrhœa.	Total.	Annual rate per 1000 persons living.	Deaths from all causes.	Death-rate per 1000 living.†
LONDON	**4,872,702**	**2**	**817**	**385**	—	**69**	**2**	**23**	**241**	**9**	**1548**	**4·1**	—	**126**	**19**	**22**	**81**	—	**8**	—	**58**	**314**	**0·8**	**3693**	**10·4**
West Districts.																									
Paddington	153,004	—	25	8	—	—	—	1	3	1	38	3·2	—	5	2	—	4	—	—	—	5	16	1·4	105	9·5
Kensington	184,635	—	27	9	—	2	—	1	14	—	53	3·7	—	3	—	1	—	—	—	—	2	6	0·4	122	9·3
Hammersmith	127,413	—	26	15	—	4	1	1	8	—	55	5·6	—	—	—	—	3	—	—	—	4	7	0·7	99	10·5
Fulham	181,282	—	19	17	—	—	—	1	4	—	41	2·9	—	3	—	—	2	—	—	—	4	9	0·6	134	10·0
Chelsea	75,457	—	9	7	—	—	—	—	1	—	17	2·9	—	3	—	1	1	—	—	—	—	5	0·9	50	8·9
City of Westminster	167,233	—	18	10	—	3	—	1	4	—	36	2·8	—	2	—	1	1	—	—	—	—	4	0·3	123	10·8
North Districts.																									
St. Marylebone	125,196	—	22	4	—	3	—	—	8	—	37	3·9	—	3	—	1	3	—	1	—	—	8	0·8	101	11·2
Hampstead	96,729	—	9	3	—	1	—	—	3	—	16	2·2	—	—	—	2	3	—	1	—	—	6	0·8	52	8·0
St. Pancras	237,792	—	65	24	—	3	—	2	10	—	104	5·7	—	14	2	—	5	—	—	—	1	22	1·2	192	11·0
Islington	353,356	—	55	28	—	5	—	3	7	—	98	3·6	—	9	—	2	3	—	2	—	3	19	0·7	252	9·7
Stoke Newington	54,838	—	10	7	—	1	—	—	2	—	20	4·8	—	2	1	—	2	—	—	—	—	5	1·2	42	10·4
Hackney	239,979	—	23	12	—	5	—	1	8	1	50	2·7	—	3	—	—	1	—	—	—	4	8	0·4	156	8·9
Central Districts.																									
Holborn	53,142	—	2	1	—	1	—	—	1	—	5	1·2	—	—	—	—	2	—	—	—	—	2	0·5	53	14·0
Finsbury	94,578	—	19	9	—	1	—	1	9	—	39	5·4	—	2	—	—	1	—	—	—	1	4	0·6	90	12·8
City of London	17,132	—	2	3	—	—	—	—	1	—	6	4·6	—	—	—	—	—	—	1	—	—	1	0·8	14	11·8
East Districts.																									
Shoreditch	114,387	1	17	4	—	—	—	—	5	—	27	3·1	—	7	—	—	3	—	—	—	4	14	1·6	114	13·6
Bethnal Green	131,579	—	21	18	—	2	—	4	13	1	59	5·8	—	4	—	—	2	—	1	—	1	8	0·8	93	9·3
Stepney	314,379	—	42	31	—	7	—	1	17	2	100	4·1	—	8	1	1	9	—	1	—	6	26	1·1	256	11·1
Poplar	172,432	—	45	8	—	3	—	1	18	1	76	5·7	—	5	2	—	3	—	—	—	4	14	1·1	184	14·3
South Districts.																									
Southwark	211,832	—	27	22	—	5	—	—	15	1	70	4·3	—	10	—	2	5	—	—	—	3	20	1·2	208	13·4
Bermondsey	127,238	—	44	16	—	2	—	1	10	—	73	7·5	—	9	1	—	3	—	—	—	2	15	1·5	131	13·7
Lambeth	327,074	—	76	19	—	2	1	—	11	1	110	4·4	—	6	2	1	3	—	—	—	5	17	0·7	237	9·7
Battersea	188,222	—	34	11	—	3	—	—	8	—	56	3·9	—	2	1	2	4	—	—	—	3	12	0·8	121	9·0
Wandsworth	305,838	—	45	11	—	4	—	2	10	—	72	3·1	—	2	1	—	5	—	—	—	—	8	0·3	193	8·6
Camberwell	286,058	—	26	27	—	6	—	1	21	1	82	3·7	—	14	3	2	6	—	1	—	3	29	1·3	236	11·2
Deptford	119,642	—	27	9	—	2	—	—	7	—	45	4·9	—	3	—	1	2	—	—	—	2	8	0·9	89	10·2
Greenwich	112,935	—	4	14	—	1	—	—	6	—	25	2·9	—	2	—	—	—	—	—	—	—	2	0·2	56	6·6
Lewisham	164,899	—	50	19	—	2	—	—	11	—	82	6·5	—	—	2	5	4	—	—	—	1	12	0·9	103	8·4
Woolwich	135,422	1	28	19	—	1	—	1	6	—	56	5·4	—	5	1	—	1	—	—	—	—	7	0·7	88	9·1
Port of London	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—

* Including membranous croup.

† The death-rates are corrected for variations in sex- and age-constitution of the populations of the several boroughs, the population of England and Wales being taken as the standard.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointments are notified: Staff-Surgeon J. W. Craig and Surgeon C. D. Bell to the *Liverpool*, on commissioning (undated).

ROYAL ARMY MEDICAL CORPS.

Captain Wilfred M. McLoughlin retires, receiving a gratuity (dated August 13th, 1910).

The undermentioned Lieutenants to be Captains (dated March 7th, 1910): Owen C. P. Cooke and Clarence H. Denyer.

Lieutenant-Colonel W. G. Birrell has arrived home on leave from Mauritius. Major E. S. Clark, from Belfast, has been appointed to the medical charge of the troops at Ballykinler Camp. Major G. B. Carter, on return from service in India, has been posted to the Irish Command and appointed for duty at Dublin. Major G. J. Stoney-Archer, specialist in advanced operative surgery, has been granted six months' leave home from India. Major H. N. Dunn, from Multan, has been appointed for duty to the Station Hospital at Dagshai, Simla District. Captain F. C. Lambert, from Cosham, has been posted in medical charge of effective troops at Wool Camp. Captain J. Fairburn, from Edinburgh, has taken up duty at Buddon Camp. Captain J. H. Douglass, on return from foreign service at Secunderabad, has been appointed to the Dublin District. Captain E. H. M. Moore, from Potchefstroom, has been posted to Ross Camp. Captain L. V. Thurston has been transferred from Peshawar District to Khanspur. Captain F. J. Garland, on arrival from Aden, has been detailed for duty at Chester. Captain W. Davis has been posted to the Station Hospital at Bareilly. Captain H. G. Sherren has been granted six months' leave from India. Captain J. H. Spencer has arrived home on leave from Gibraltar, and Captain G. R. Painton has arrived home on leave from West Africa. Lieutenant T. H. Scott, from Lahore, has joined at Ferozopore. Lieutenant F. J. Stuart, from Meerut, has been posted to the station hospital at Kailana. Lieutenant H. Gibson has been transferred from Poona to Jhansi. Lieutenant B. A. Odlum, from Tidworth, has been posted in charge of effective troops at Perham Down Camp, Salisbury Plain. Lieutenant A. Hendry, from Neemuch, has taken up duty at Mhow.

INDIAN MEDICAL SERVICE.

The King has approved of the following promotion: Lieutenant-Colonel Charles James Bamber to be Colonel (dated July 12th, 1910).

The promotion of Major Godfrey Tate to that rank is antedated from Jan. 28th, 1910, to July 28th, 1909.

The King has also approved of the following retirements: Colonel Thomas Elwood Lindesay, C.I.E. (dated July 12th, 1910); Lieutenant-Colonel Rustam Hormasji Cama (dated July 13th, 1910).

Colonel W. G. King, Inspector-General of Civil Hospitals in Burma, has been granted three months' leave. Lieutenant-Colonel F. C. Reeves, Madras Presidency, has been reverted from civil to military employment. Lieutenant-Colonel C. M. Thompson has been appointed to officiate as Principal of the Medical College at Madras. Lieutenant-Colonel J. G. Jordon, officiating civil surgeon of Darbhanga, has been allowed six months' combined leave home from India. Lieutenant-Colonel R. H. Dukes, civil surgeon of Mandalay, has been granted six months' leave on account of ill-health. Lieutenant-Colonels J. A. Burton and R. H. Castor, Bombay Presidency, have arrived home on leave. Major S. A. Harris, Deputy Sanitary Commissioner of the United Provinces, has been appointed to officiate as Sanitary Commissioner of Burma during the absence on leave of Major C. E. Williams. Major S. Browning-Smith, Chief of the Plague Department of the Punjab, has been transferred to Eastern Bengal and appointed to officiate as Sanitary Commissioner during the absence on leave of Lieutenant-Colonel E. C. Hare. Major E. M. Illington has been granted 18 months' combined leave and furlough home from India. Majors J. Penny and H. A. J. Gidney, Bombay Presidency, have arrived home on leave. Captain H. E. Stanger-Leathes has been appointed Staff-Surgeon at Poona. Captain J. A. Cunningham, of the Bacteriological Laboratory at Bombay, has been granted one year's furlough from India. Captain P. K. Tarapore has been appointed Officiating Superintendent of the Mandalay Central Jail, vice Captain A. W. Greig who has proceeded on leave. The services of Captain C. A. Sprawson have been placed at the disposal of the Government of the United Provinces. Captain H. C. Buckley has had his leave extended by four months. Captain H. C. Keates and Captain W. M. Anderson, Bombay Presidency, have arrived home on leave from India.

SPECIAL RESERVE OF OFFICERS.

Royal Army Medical Corps.

Henry Robins Borcherds to be Lieutenant (on probation) (dated July 25th, 1910).

TERRITORIAL FORCE.

Yeomanry.

Buckinghamshire (Royal Bucks Hussars): Surgeon-Captain Leonard A. Bidwell to be Surgeon-Major (dated Sept. 20th, 1909).

Royal Army Medical Corps.

North Midland Mounted Brigade Field Ambulance: Major Thomas Thompson to be Lieutenant-Colonel (dated April 1st, 1910).

2nd South Midland Mounted Brigade Field Ambulance: Captain Charles J. Deyns to be Major (dated Feb. 23rd, 1910).

5th Northern General Hospital: Captain Leonard E. Ellis resigns his commission (dated August 17th, 1910).

Attached to Units other than Medical Units.—Lieutenant-Colonel Philip P. Whitcombe resigns his commission, and is granted permission to retain his rank and to wear the prescribed uniform (dated August 17th, 1910).

FLORENCE NIGHTINGALE.

Miss Florence Nightingale, O.M., died at her residence, South-street, Park-lane, on August 13th, in her ninety-first year. Her name is revered throughout the world. It is not necessary to remind anyone of her work during the Crimean war, and though what she has done for nursing would require a large volume if it were fully told, the tale is tersely summed up in the telegram which the King has sent to the relatives of the deceased lady:—

> The Queen and I have received with deep regret the sad news of the death of Miss Florence Nightingale, whose untiring and devoted services to the British soldiers in the Crimea will never be forgotten, and to whose striking example we practically owe our present splendid organisation of trained nurses. Please accept the expression of our sincere sympathy. GEORGE, R. & I.

The King has approved the appointment of Mr. A. E. J. Barker, F.R.C.S. Eng., F.R.C.S. Irel., L.R.C.P. Irel., to the Consulting Staff of the Convalescent Home for Officers of His Majesty's Navy and Army, Osborne, Isle of Wight, as from July 28th, 1910.

Correspondence.

"Audi alteram partem."

"SUBJECTS OF SURGICAL INTEREST."

To the Editor of THE LANCET.

SIR,—I had just read Mr. H. F. Waterhouse's address in the *British Medical Journal* with this title when a patient, a girl 14 years of age, called on me with reference to a condition of her eyelids (ophthalmia tarsi) which disfigured what was otherwise a very pleasing countenance. She informed me that for months past she had been using lotions and ointments recommended by chemists and others without any relief. I prescribed 5 grains of aluminium acetate in 1 ounce of distilled water as a lotion to be used three times daily. On the 6th of this month she presented herself to report progress and I was very gratified to find the lids perfectly healthy. I had prescribed no medicine as the girl was in excellent health.

With reference to heated air in shock, when in colliery practice I had frequently to use active measures to remedy this condition. Hot bricks, hot bottles and blankets out of hot ovens were never omitted, but when shock was accompanied by pain I feel convinced that morphia given hypodermically is also necessary. In lieu of brandy I have seen quite excellent results from Hoffman's anodyne in

40-minim doses repeated every half hour until its influence was perceptible in the pulse. This is a diffusible stimulant of the first order and relieves the contraction of arterioles and capillaries, thus freeing the action of the struggling heart. A single dose will sometimes do all that is required in that direction.

Operative treatment of simple fractures I have never seen the need of. I feel convinced if proper attention be given to the relaxing of those muscles and tendons that bring about the deformity there will be no need for operative measures. I well remember being sent for in a case of fracture of both bones of the leg about the middle. That of the tibia was oblique and the deformity was very pronounced. A medical friend who had also been sent for was present and was doing his very utmost to reduce the deformity by traction from the ankle, the thigh and leg being in full extension. His efforts were altogether useless. We then flexed the thigh on the abdomen and the leg on the thigh; the bones immediately unlocked and not the least difficulty was found in putting them into correct position. With the thigh and leg still flexed we turned him on to his side, applied splints, and with sandbags kept the leg in flexion. In about eight weeks he was able to resume duties without the least shortening of the limb. This is simply the history of many fractures of a similar nature treated in the same manner with the same results. Fractures of the clavicle seldom unite without some deformity, but I cannot conceive how inconvenience (short of injury to the sub-clavian) so great as to balance the risk of cutting and screwing or plating could be experienced by any deformity following fracture of that bone. If the patient could be induced to lie on a hair or other hard mattress on his back and without a pillow, or a very low one, for from 10 to 14 days, the deformity, if any, would be inconsiderable. Complicated or comminuted fractures or displacements of bones of the tarsus may need operative treatment, but I have never seen a case of the kind that I can now look back on and think that operative treatment would have benefited materially. I may be wrong, but I fear I am too chronic in my views to alter them on this subject.

General practitioners will thank Mr. Waterhouse for simplifying the disinfecting of operation surfaces. Solution of iodine I have noticed has for long been a favourite disinfectant with Dr. Lloyd Roberts. I have seen him swab a septic endometrium with the strong liniment of iodine with the happy results that so constantly follow his practice in obstetrics and gynæcology.

I am, Sir, yours faithfully,

Manchester, August 12th, 1910. WM. BENNETT, M.D. Durh.

THE STATUS LYMPHATICUS IN ITS RELATIONS TO THE USE OF ANÆSTHETICS IN SURGERY.

To the Editor of THE LANCET.

SIR,—I read with deep interest Dr. Dudley Buxton's valuable lecture on the above subject, which appears in THE LANCET of August 6th. Its appearance was most opportune and its teaching of permanent value to anæsthetists. His 39 lines on diagnosis are admirable, as are the succeeding 34 lines which are devoted to clinical symptoms. I need not follow the distinguished writer through all the divisions of the lecture, which it is a pleasure to read, and, I believe, voices the opinion of all medical practitioners who have had experience in the administration of anæsthetics. Dr. Buxton throughout is fully in accord with the principle laid down by Dr. Frederic Hewitt in Dublin, at the meeting of the British Association, and reported in the recently published volume of its Transactions—namely, that the anæsthetic be chosen for the patient. The same views were expressed at the Australasian Medical Congress in 1908 and are now almost universal. Dr. Buxton clearly shows that in a state of lymphatism the risk of life under an anæsthetic is terrible; we learn from him that the danger under anæsthetisation is almost altogether due to the condition of the patient, and that the recognition of the conditions that so greatly increase the risk of anæsthetisation is difficult and can be made only by a highly educated physician, one familiar with the normal standard of health and all the known deviations from it. With this conclusion I think all physicians will agree. Why then does Dr. Buxton advocate that gentlemen who are not medical practitioners should be legally empowered to give potent medicines to patients of whom they can know no more than the man on the street? The safety of the public demands that the anæsthetist should be able to form an opinion on the condition of health of the person about to undergo an operation, and his opinion should be based on a careful physical examination—this a man without medical training cannot do.

I am, Sir, yours faithfully,

Dublin, August 12th, 1910. GEORGE FOY.

GRAIN ITCH.

To the Editor of THE LANCET.

SIR,—In connexion with the correspondence on the above subject in the columns of your journal the following facts may be of interest. A few months ago in carrying on some experiments in the making of cereal decoctions I discovered in one sample, prepared from a proprietary food, a vast number of Acari farinæ. If this acarus is to be found in farinaceous foods of this kind it is highly probable that it also occasionally occurs in dusting powders of which starch is the basis, but so far I have not discovered any parasites in the powders I have examined. Dr. G. L. Eastes tells me that he has found acari in specimens of urine sent to his laboratories for examination, and to the best of his belief that such urines were from female patients. Under such circumstances it is quite possible that the acari found their way into the urethra or into the urine from the use of a dusting-powder containing the parasites. On one occasion Dr. Eastes found blood in the urine as well as the parasites. This blood may have been due to irritation of the urethra by the acarus. It is not easy to detect the presence of these parasites in meals or flours; there may be nothing in the appearance of the latter to arouse suspicion although they may be teeming with mites. The simplest way to find them is to make a thin decoction and then to examine it under the microscope with a lower power objective. In view of these facts, in cases of unexplained urticaria occurring in infants, it might be worth while to examine the dusting-powder for the presence of Acarus farinæ.

I am, Sir, yours faithfully,

London, W., August 13th, 1910. ERIC PRITCHARD.

THE SUPPRESSION OF QUACKERY.

To the Editor of THE LANCET.

SIR,—Would it not be as well to consider this question from the point of view of the public we are so anxious to benefit? To the average layman the allurements of quackery must be wellnigh irresistible.

"Mr. Jones" feels ill, consults his morning paper, and selects his remedy. It does not matter which of the patented miracles he purchases because they all cure everything. They can cure him if he is suffering from an incurable disease. They *say* so. If he has been given up by several eminent specialists, and has undergone not less than three painful operations in a well-known hospital, and has just refused to part with his leg he will have a specially good chance of being completely restored to health. The testimonials presented with each bottle or box point to this conclusion. The literature supplied with the remedy will tell him what he suffers from, where it grows, and how to get at the roots. The root of the evil depends on the remedy he selects. It may be the liver, or the kidneys, or the lungs, or the stomach, or the blood. It may even be something else, but this is not usual. He will not know which organ is the *only* one it is any use to ply with plaster of Paris or other rare herb until he has studied the pamphlet, but after doing so there is no doubt about it. If he choses "Piebald Pebblets" he will find that the liver is the seat of the mischief and must be cleansed, but if he tries "Lilac Linctus" he will discover that the lungs are the life, &c.

Again, the length of his illness will be stated. This is a great advantage, because he can make his arrangements accordingly. The whole thing is mapped out for him. He will begin to feel better after the first dose. After the sixth bottle he will be a different man, and after the fifteenth he will be himself again. Then all he has to do is to always

keep a bottle by him and recommend it to all his acquaintances. I have only cited a few of the more modest advantages that quackery presents to the layman. No doubt before long some king among quacks will advertise a panacea the regular consumption of which will not only cure every known disease and keep the body in sound health afterwards, but also mend socks, brush the dog, turn the cat out at night, and keep the canary supplied with groundsel. I feel sure there would be a run on it.

Now, Sir, what can the qualified offer in place of such attractions? If we are to snatch these frauds from the people we must provide them with some harmless substitute, and until we have settled what that substitute shall be, it is useless to proceed. I am, Sir, yours faithfully,

August 13th, 1910. F. H. PICKIN.

ON THE NOTIFICATION OF CONSUMPTION.

To the Editor of THE LANCET.

SIR,—With reference to Dr. R. Farquharson's article in THE LANCET of July 23rd and the reply by "Forensicus" to it in your issue of August 6th, I should feel obliged, with your permission, if "Forensicus" would reply to the following questions.

Before stating them I should like to say that it is not my intention to defend Dr. Farquharson against "Forensicus," believing that the former is eminently capable of performing that task for himself.

"Forensicus" has not disproved a single fact or controverted a single statement in Dr. Farquharson's article. He evades the issue by bestowing doubtful compliments and by appealing to authority, setting up one against another in order that he may gain that further knowledge he so earnestly desires. He displays a knowledge of the subject somewhat above that of the ordinary layman, nevertheless one perceives the hand of an Esau with the voice of a Jacob behind his letter. He believes that compulsory notification is an essential factor if a successful campaign against consumption is to be waged, and thinks the putting into force of a resolution such as that drafted by the public health authorities of the Rochdale union, and cited by him, would be the best means to that end.

These are my questions: 1. If compulsory notification of consumption implies the subsequent control and supervision of the subject, how is this to be carried out, and what are the special regulations the consumptive must comply with and observe in public and private life? 2. What action would the authorities take in the case of a consumptive who was under the care of a private medical practitioner and who at the same time was able and desirous to follow his business or supervise same; or in the case of a person in private life? 3. When would the authorities cease to control and supervise the consumptive?

Granting in each case that the hygienic condition of the consumptive's home was such that he could be treated there, or such as would enable him to carry out a mode of life essential to him after he had undergone treatment.

I am, Sir, yours faithfully,

J. CUNNINGHAM BOWIE, M.B. Glasg., D.P.H.

Cardiff, August 8th, 1910.

HEART PUNCTURE.

To the Editor of THE LANCET.

SIR,—I am honoured by the interest shown by Dr. Alexander Morison in my paper on "Heart Puncture," which was published in THE LANCET of August 6th, and have much pleasure in meeting his request for additional details as far as I am able. Of course, the very nature of the case precluded elaborate observations with scientific precision, but I am completely satisfied that there was no pericardial flooding with blood from the puncture. The fact of this not being recorded is unfortunate, as it was kept in mind and looked for and dreaded. The heart, from an inch to the left of the nipple in its maximum distension, retracted almost immediately to the nipple line and never went further to the left again either before or after death. I state this with conviction, because I carefully mapped out the area of præcordial dulness before puncture with hammer and pleximeter, and marked the limits in blue pencil, and I did the same after death and found complete similarity. The only explanation I can offer for the blood not getting down between pericardium and heart is the likelihood of there having been adhesions and no cavity existing, and this is in harmony with attacks of recurring præcordial pain the girl often had, though I never heard friction sounds nor diagnosed presence of fluid. With regard to the pulse, it will be remembered that I could not feel it either at wrist or zygomata just before puncture. After her relief it was perfectly regular and full but easily compressed, but I did not think it dicrotic till well on towards the end. The nails were easy to blanch by pressure at the tips, but a crescentic area at the nail-roots remained pink under considerable pressure, and so did the capillaries of the lips under the edge of a tumbler pressed against them. There was no capillary pulse, no water-hammer pulse, and no *tache cérébrale*. These are all the additional items I can add which I can vouch for. There was no post-mortem examination. I am, Sir, yours faithfully,

Aberdeen, August 15th, 1910. J. WALLACE MILNE.

*** The quotation of Dr. Wallace Milne's paper in certain lay journals has made him apprehensive of the accusation of being privy to such publication. He asks us to state that he had no hand in the matter.—ED. L.

BLIND MASSEURS FOR BERI-BERI PATIENTS.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to a paragraph, headed as above, in to-day's *Times* concerning the treatment of beri-beri at the Seamen's Hospital, Albert Docks, London, E., with which my name is connected. I wish to state that I have nothing to do with the treatment of cases of beri-beri at the hospital, nor have I heard of Swedish movements and massage being employed in the treatment of beri-beri.

I am, Sir, yours faithfully,

Harley-street, W., August 17th, 1910. JAMES CANTLIE.

THE NATION AND THE NAVY.

To the Editor of THE LANCET.

SIR,—My connexion with the Royal Navy commenced many years ago, and I have continued in close touch with it ever since. I have such a confirmed conviction of the vital importance of the perfect efficiency of the executive officers of all ranks, that I beg to submit for discussion in your columns the problem how the greatest natural talent and the highest fighting abilities of the nation may be obtained for staffing His Majesty's ships of war.

Certainly the responsibilities of admirals and captains in a great naval war are far greater than those of judges, bishops, legislators, or the heads of other departments of Government. Even if it be allowed that only very high physical, mental, and moral qualifications be necessary for the executive officers, of and above the rank of lieutenant, the great practical question arises: At what age should the raw material—the naval cadets—be selected for training as executive naval officers?

I have the highest opinion of the method of training the boys at Osborne College; and most sincerely do I wish that all our public schools and grammar schools gave similar training to all the boys who are physically and mentally fit for it. But I venture to suggest that the age of entry as naval cadet is far too low to permit of the fittest material being selected to fulfil the most onerous duties that any human beings can be called upon to perform—the naval defence of this Empire. We certainly do not select boys of 13 to train them specially to be our judges, bishops, doctors, poets, musicians, painters, and sculptors. Nor does any other naval power select boys for naval training at so low an age as we select our cadets. At least 90 per cent. of the medical and military men, heads of factories, railways, and mercantile firms would, I believe, agree that it is almost impossible to ascertain by physical and educational examinations of boys of 13 years of age what they will turn out to be at 16 to 18 years of age, still less what will be their moral qualifications between 20 and 30 years of age.

The influences of heredity, whether good or bad, are often undeveloped before the age of 13 to 15, but nearly always

become markedly developed by 16 years of age. Thus it not infrequently occurs that there are cases of slow but sure growth and development, so that boys of 13 may be small, delicate looking, and backward in knowledge, but become stalwart, quick, manly, capable fellows at 16, and continue to develop and improve for several years after, far outstripping the precocious boys. Unfortunately, on the other hand, it is not at all unusual for the well-developed, clever, smart boy of 13 to fall off mentally, morally, and physically before attaining the age of 16, although living in the same institution and under the same conditions as the boys who have developed most satisfactorily.

No navy has had such extensive and successful battle experience with all modern appliances in use as the Japanese navy has had since the commencement of the Japo-Chinese war, and never have the officers of any navy acquitted themselves with more patriotism, bravery, and fighting skill than the Japanese naval officers of all ranks. All Japanese between the ages of 16 and 20, under certain rigid conditions, may become candidates for entry as naval cadets, and thus the very cream of the young manhood of Japan is drawn upon to supply the brain and heart and soul of the Japanese navy.

All other foreign nations enter their naval cadets at a much later age than those entered for the British navy. The question for serious discussion by our patriotic medical profession men is this: Should not candidates for training for service as executive officers in the Royal Navy be selected from youths over 16 years of age who have passed through or escaped the diseases of childhood and of early adolescence, and who have fairly developed the indications of their hereditary virtues or defects?

I trust, Sir, that you will be able to find room in your columns to call attention to this most important matter.

I am, Sir, yours faithfully,

August 8th, 1910. Z.

THE BRUSSELS UNIVERSAL EXHIBITION.

(FROM OUR SPECIAL SANITARY COMMISSIONER.)

IF large crowds and exorbitant charges are evidences of success, then it may at once be recognised that the Brussels Exhibition is a decided success. But this also should serve as a warning to visitors, who will have to pay two and three times the usual price for their rooms, if, indeed, they are able to get rooms at all. It is a usual and daily sight to see cabs loaded with luggage, and anxious, weary-looking travellers wandering from street to street and house to house in search of rooms. As these hunts sometimes last for hours, the cabs do not get back to the station in time to take up the next lot of arrivals, thus the first experience often consists of a long wait for a public conveyance. However, having finally settled down, perhaps in a fifth-rate hotel when the visitor intended to stay at a first- or second-class hotel, it will be found that, in spite of the crowd, there is no great difficulty in reaching the exhibition. Certainly, it is well-nigh impossible to board one of the trams that start from the centre of the town for the exhibition, but it is quite easy to get into a tram going to the Porte de Namur. Here there is a line of special trams starting almost every minute for the exhibition, and a seat can be obtained with comparative ease; the cost of the journey from the centre of the town is only 3*d.*, so this is an easy way of avoiding the extortionate charges of cabmen and some compensation for the very high rent paid for a very inferior room. There is also this further consolation—namely, that however humble the room it is likely to be clean. Further south, in Europe, pretentious palaces are often not nearly as clean as the poorest dwelling or hotel placed under the care of a Flemish housewife. Having thus briefly mentioned the inconveniences accompanying a visit to Brussels at this moment, the question arises whether it is worth the trouble from the general and from the technical point of view. During the few days I have been here I have not had time to visit the popular parts of the exhibition, not even the Brussels Kermesse, where the side shows and reproductions of old Brussels attract countless crowds. But I have seen enough to say that the technical sections will well repay a visit, not only in regard to medicine itself but also in respect to the allied sciences. Of course, there cannot be exhibitions of the medical arts, but there are very elaborate pharmaceutical exhibits, a great deal of bacteriology, of epidemiology, climatology, and of sanitation and sociology. It did not seem to me that there were many surgical instruments exhibited, though in the British section Messrs. Down Bros., Limited, of London, make a brave show of instruments, operating tables, and furniture or fittings for operating theatres.

Triumph of the British Section.

Whatever may be said about the exhibition as a whole, visitors from England will be agreeably surprised by the very creditable display made in the British section. The fact is that the British Government has at last realised that it can no longer afford to fold its arms and trust to private initiative. Formerly, when a nation announced its intention of holding a universal exhibition the British Government appointed a Royal Commission. By the time influential and prominent persons had been persuaded to sit on this Commission all the best places had been secured by different governments, and Great Britain had to be content with what other nations left. Then after the exhibition was over the British Royal Commission was dissolved, and the experience it had acquired was lost, so there was no continuity. In such circumstances Great Britain could not rival the German exhibitors who were organised by their government, a government which had stored up all the experience acquired by former governments at the previous exhibitions. The French section also was organised partly by the government and partly by some of the more important municipalities. In regard to the latter, I may, however, as well and at once state that this time the exhibits of the Paris municipality are disappointing. At the great World's Fair of St. Louis the Paris pavilion was a model of what a great national section should aim to be. At Liége, a few years ago, the story of the growth and improvement of the great capital and all its sanitary and technical services was told with a scientific completeness that was only surpassed by the ingenuity of the designs or objects shown and their artistic execution. Not so this year at Brussels. We learn less and see less than formerly in the pavilion of *La Ville de Paris*. But to return to the British section, under the disorganising *régime* of disconnected Royal Commissions, the exhibitors found that they were so badly organised and exposed to so many annoyances that some three or four years ago many of them refused to participate in any more exhibitions. In any case, they said it was not worth while exhibiting on the old lines. Yet, on the other hand, exhibitions are an established form of world advertisement from which no nation can afford to abstain. It would be like dropping out of the race. Indeed, a rumour was already gaining ground that England was falling out. This exhibition has triumphantly proved the contrary. Two main causes explain this success. Instead of trusting merely to a temporary Royal Commission of eminent but sometimes inexperienced persons, the Board of Trade has created a department whose mission it is to deal with exhibitions. Secondly, large industries have renounced altogether the idea of individual advertisement, and, following the example of many continental nations and of our own colonies, have gone in for collective exhibits. This is especially the case with the textile trades. Formerly, individual manufacturers hung up lengths of cloth, which were very uninteresting and uninstructive to the general public, while rivals in the trade came and copied the designs. Now the members of the Chambers of Commerce of Bradford and Huddersfield exhibit panoramas of their business. First we have mountains, shepherds and sheep. Then we have wool-sorters at work and can see exactly the kind of task which sometimes results in causing sad cases of anthrax. After that a wool-spinning and a wool-weaving mill is presented to us. Now comes a garden party, where ladies, gentlemen, and children all appear in the woollen clothes which are the final result of this industry. In another instance the cloth made is exhibited as worn by wax figures of our leading statesmen, chatting together in a full-sized reproduction of the inner lobby of the House of Commons. It will be readily understood how very attractive such interesting waxworks and panoramic views have proved to the general public. No names of firms are mentioned, but it has been most obviously demonstrated that Bradford and

Huddersfield, and Scotland for its tweeds, are great centres of the textile industries. No immediate orders are expected, but there are patriotic motives at work and indirect effects may be anticipated. It is by such action that we have recaptured the place we should never have lost in these international exhibitions.

The Exhibit of the British Home Office.

Though not so attractive as a show, still of even greater importance is the magnificent and extensive exhibit of the British Home Office. This brings us to questions directly concerning this journal. In the main the exhibits deal with life- and health-saving processes, and it is very gratifying to see that in this respect there is much to show. Further, and so that the lesson shall not be lost, the Home Office has had the excellent idea of printing and posting on each exhibit a fairly lengthy and explicit explanation of its purpose, and this not merely in English but also in French and in German.

As Belgium is a great coal-mining country the Home Office has very appropriately devoted a large proportion of its space to making a "mine section." Thus there is a model of the first gallery erected in Europe to train miners in rescue work. This was built at the Altofts Collieries, Yorkshire, in 1901. It is 150 feet long, can be closed hermetically and filled with poisonous gases. Inside are stones, timber, all sorts of obstructions to imitate a mine, so that miners find there the dangerous conditions that prevail in a mine when an accident has occurred. They can then within easy reach of rescue practise working with the heavy life-saving apparatus and masks for breathing the compressed air they carry with them. The "Weg," the "Aerolith," and "Salvator" breathing apparatus are shown. With the latter, for instance, there are two steel cylinders containing 5 cubic feet of oxygen gas compressed to 120 atmospheres, and the breathing-bag can be so supplied that the wearer can work in a poisonous atmosphere for two hours. At the Aberaman rescue station in South Wales, serving 15,905 colliers, 60 men have now been fully trained, and here they are made to walk long distances over broken ground while wearing the heavy breathing apparatus. Then they are taught to go on their hands and knees, to push or pull heavy loads. Thus, when an accident does occur they will be quite accustomed to the sort of physical efforts needed. They will also be familiar with the breathing apparatus they wear and the telephone which they carry suspended round their necks. Thus they will be better able to rescue the victims of accidents, and be less likely themselves to become the victim of an accident. There are also such training rescue stations at Wath in Yorkshire and Howe Bridge in Lancashire. Besides models and breathing apparatus, there are numerous photographs showing the work that has been done. What is now needed is the spread of this good example so that there should not be a single colliery that is not within easy reach of such a rescue station.

After coal-mining come such dangerous industries as steel-grinding and the manufacture of earthen or china ware. In both cases it is a question of exhaust ventilation so as to remove deleterious dust. The difficulty, especially in regard to steel-grinding, is that the preventive measures, in whatever form they are adopted, invariably increase the cost. Many workmen hire a bench, but, if there is a hood over the revolving grind-stone and a fan working in connexion with this hood to draw away the steel dust produced by the grinding, the hire for such a grinder's bench will be higher because the cost is greater. The grinder who works by the piece will earn less in proportion to the higher rent he has to pay for the use of the bench. Therefore it is easier to devise good methods than to persuade the independent piece-workers and the smaller employers to use them. There are on exhibition excellent working models of dust and fumes exhausts applicable to work in the Potteries, together with apparatus for ascertaining the amount of dust that is present in the air of workrooms. By means of one such apparatus it was found that in 10 cubic metres of air there were 1114 milligrammes of dust in dry rough glazing of metals after grinding, but 5862 milligrammes were the maximum in leadless processes. A number of other models, drawings, and photographs illustrate what, in carrying out the Factory Acts and similar legislation, the Home Office does to prevent accidents and to preserve the health of the workers. Never before has the beneficent action of the British Government been so well set forth and placed within the easy understanding of the crowds that visit exhibitions, and it goes without saying that such a national effort will have its effect on our continental neighbours.

By the side of these collective exhibits there are, of course, many private exhibits, but it is the action of the Government and of the chambers of commerce that has done most to raise the position of Great Britain, and therefore I mention these pieces of collective organisation first.

POSTSCRIPT.—Just as our Special Correspondent had sent us this account of the new and promising departure made by the British Government to ensure an adequate representation of British science, art, and industry at international exhibitions, the news came that the British Section, among other parts of the Brussels Exhibition, has been swept away by fire. The whole of the British Section, except the machinery hall, and the whole of the Belgian National Exhibit have perished. The loss to many exhibitors, however far they may be recouped in money through insurance policies, is very heavy, as some of the things which have perished can never be replaced.

(To be continued.)

CONGRESS OF ALIENIST PHYSICIANS AND NEUROLOGISTS OF FRANCE AND THE FRENCH-SPEAKING COUNTRIES.

(FROM A CORRESPONDENT.)

THE Twentieth Congress of Alienist Physicians and Neurologists of France and the French-speaking Countries was held in Belgium—namely, in the cities of Brussels and Liége, from August 1st to 8th. The present was the second occasion on which this Congress has met in the Belgian capital, and this time it coincided with the Brussels Exhibition. Although French was the only language of the Congress, many nations have contributed to the membership, for Swedes, Spaniards, Roumanians, North Americans, Czechs, Germans, Russians, Australians, and English have not only been present but have taken no inconsiderable part in the business of the meetings. King Albert and the Belgian Government have favoured the Congress with their patronage, and at the inaugural meeting the King was represented by Count d'Arschot, with whom were also M. Velghe, director-general of the Ministry of the Interior; and M. de Latour, director-general of the Ministry of Justice. The delegates of the French Government were M. Granier, representing the Ministry of the Interior; Professor Simonin of Val de Grâce and Dr. Binet Sanglé, representing the Ministry of War; M. Bertrand, Inspector-General of the Naval Medical Service; and M. Beau, French Minister in Brussels. There were two presidents, one of whom was a Frenchman, Dr. Klippel, physician to the Hôpital Tenon in Paris, well known for his investigations into the histology of the nervous system. The other president was a Belgian, Dr. Jean Crocq, the accomplished organiser and general secretary of the last congress and celebrated for his neurological and psychiatric work.

Proceedings at Brussels.

The opening meeting was held on August 1st in a room on the ground floor of the Hôtel de Ville, Brussels, when an outline of the subjects to be dealt with was given by the presidents and the delegates of the Governments, some of them being questions of national importance, such as sleeping sickness and diseases of which drowsiness was a feature, the systematisation of trophic lesions in mental and nervous diseases, and the connexion between alcoholism and crime.

In the afternoon Professor VAN CAMPENHOUT (Brussels) read a paper on Sleeping Sickness, a disease caused by trypanosomata, parasites living in the patient's blood.

On the following day the learned professor of diseases of hot climates showed kinematograph pictures illustrating the evolution, propagation, and development of blood parasites as well as the behaviour of the blood corpuscles towards them; the red corpuscles were repelled and moved away, whereas the white corpuscles absorbed the parasites by the process of phagocytosis. These pictures, obtained from films which M. Comandon had prepared by means of the ultra-microscope, illustrated very clearly the phenomena of trypanosomiasis and of some other diseased conditions caused by intestinal parasites.

Dr. LHERMITTE (Paris) read a paper on the Symptomatology of Sleep, and on various diseases of nervous or organic origin in which it was observed, examples of this kind being supplied by hysteria, epilepsy, diabetes, and albuminuria. Trypanosomiasis, which has been imported into Europe from the colonies, is difficult to diagnose in the early stage when the patient is excited or demented. If he has committed a crime the question of his responsibility for his actions remained for consideration and was of importance in a medico-legal point of view.

Professor BLANCHARD, Professor RÉGIS, Dr. GASTON MARTIN, and Dr. LINGENBOSCH discussed some points in the parasitology of the trypanosoma.

M. SANO (Antwerp), well known for his researches on the anatomy and pathology of the nervous system, read a paper on Trophic Lesions found in the Living Subject and at Necropsies.

M. HENRI MEIGE described a case of tremophobia, his remarks giving rise to a discussion on the pathology and treatment of this condition.

Dr. FOVEAU DE COURMELLES mentioned the case of a printer who suffered from tremors and neuritis soon after his little finger had been crushed, and who derived no benefit from treatment. On the other hand, patients who believed that they suffered from lesions of the bones recovered from their sensations when radiography proved that the supposed lesions did not exist. This form of suggestion was often useful.

Dr. WILLIAMS (Washington) showed a New Thermo-æsthesiometer.

Professor MEDEA (Milan) mentioned some clinical details relative to Cerebral Tumours and their Surgical Treatment.

A visit was made to the old colony at Gheel where the principle of "the open door" has been followed for centuries and where the insane patients who are not dangerous live in families; they work as agricultural labourers and have reclaimed much land which was formerly unproductive. There is an infirmary for the reception of dangerous, impulsive, and restless patients.

Dr. CHAUMIER, Dr. JOURDAN, Dr. PARHON, Dr. LALLEMANT, and Dr. HAMEL here read papers on delirium, psychoses, and other subjects. It was said that some insane persons who belonged to various nationalities and had come to the end of their resources in the United States of America had been deported from that country to Havre, where the local authorities were in some doubt as to the propriety of sending them on to their native countries. If that were done all the European nations would become interested in the solution of the question.

Proceedings at Liége.

On the following day, Thursday, August 4th, the Congress met at Liége.

Dr. LEY (Brussels) and Dr. RÉNÉ CHARPENTIER (Paris) each read a paper on the social problem of the connexion between alcoholism and crime. This problem was one of urgent importance for the whole world. How many acts of violence, how many crimes of all kinds, offences against both person and property, were traceable to alcohol? In acute alcoholic intoxication, the intoxication with hallucinations of Garnier, the delirium (described by Lasègue and Régis) might continue for several days, after which the individual might return to his normal condition. Dr. Charpentier discussed the management of an attack of dipsomania and the question of secluding the individual if he was disposed to escape from his home. In cases of chronic alcoholism criminal acts were frequent, because the mental powers were weakened and no longer had a restraining influence on the inebriate, who was, moreover, liable to attacks of fear and to hallucinations of sight and hearing, and might become dangerous to others. Dr. Ley and Dr. Charpentier quoted statistics for Belgium, France, and other nations, clearly demonstrating the simultaneous increase of alcoholism and crime. They also described the measures employed in various countries for restricting the sale of alcohol, including total prohibition as adopted in Iceland. It often happened that an inebriate committed a crime under the influence of fear due to hallucination Experts were sometimes at a loss to determine whether responsibility was diminished or not.

Various motions and recommendations for future legislation were now proposed and subsequently adopted by the Congress.

Various medico-legal questions were discussed by M. GRANJUX, M. JUDE, M. JUQUELIER, M. FILASSIER, M. BINET, Professor SIMONIN (Paris), and others. Professor RÉGIS said that among inebriates the birth-rate was high, although alcohol caused sterility in the lower animals.

Miscellaneous subjects connected with anatomy, physiology, therapeutics, and psychology were in the next place discussed by M. PARHON, M. DIMITRESCO, M. HALIPRÉ, M. HERCOUËT, M. RAOULT-DESLONGCHAMPS, and others. The question was raised whether neurasthenic patients ought to be isolated for the purpose of treatment or whether they could be treated while living at home and following their occupations. Some divergence of opinion was evident, but many facts proved that it was not always necessary to isolate such patients for this purpose. Another subject of interest was the treatment of cases of facial and sciatic neuralgia in which all remedial measures had failed; with regard to the last-mentioned disease Dr. FOVEAU DE COURMELLES said that continuous electric currents, light, X rays, and radium were sometimes beneficial and ought to be tried successively. He said that chronic neuralgia, whether facial, intercostal, or sciatic, which are the most frequent forms, often resists all kinds of treatment, both medicinal and operative, and recourse is had in the last resort to physiotherapy, which has to vary its methods. The galvanic current, which is within reach of all practitioners, if applied in its continuous form with the positive pole over the painful region, gives good results and is well tolerated if it is quite constant and if the electrodes are good. The faradic current and vibratory massage are less useful. Blue light, whether solar or electric, with blue glasses is helpful; ultra-violet rays are more powerful; the Roentgen rays are still more so; radium has an extremely well-marked sedative action, as he showed at the meetings of that Congress in 1903 and 1904.

Excursions and Entertainments.

Dr. CROCQ, the Belgian President of the Congress and the principal organiser of it, had arranged a number of excursions and amusements. The visit to the colony at Gheel on Wednesday was followed on Friday and Saturday by a two-day excursion into the Province of Liége, the means of conveyance being either railway train or motor vehicle, according to individual preferences. At the numerous banquets which took place during the Congress wine was drunk but not spirituous liquors; many of the speakers, while acknowledging the usefulness of wine, recommended moderation, but there were very few who argued in favour of total abstinence. Visits were made to Spa, to the cascade of Loo, to the celebrated caves of Rochefort and Han, to Dinant, to Namur, to the banks of the Meuse, to the Ardennes, and to several other places. On Thursday and Sunday entertainments were given by the municipalities in the Hôtels de Ville in Liége and Brussels. Finally, for those who were fond of travelling there was, from August 9th to 18th, a well-organised excursion on a large scale into Flanders and Holland.

MANCHESTER.

(FROM OUR OWN CORRESPONDENT.)

Medical Inspection of School Children.

THE medical inspection of school children for the Lancashire county council has been going on for more than 12 months. This, the first complete survey, was begun early in January, 1909, and was completed at the end of April, 1910. The number of children of all ages examined was 61,883, of whom 31,162 were boys and 30,721 were girls. In speaking on the report from the medical superintendent at the meeting of the council on August 4th, Sir Henry Hibbert said there were 158,000 children on the books in their elementary schools, 61,883 of whom had been examined. In various ways 39,042 were more or less ailing, but "only 10,788 were affected with diseases likely to interfere seriously with their progress in life." But even this number, and when the examination of the remainder is completed it may be increased, is sufficiently serious. If similar health conditions obtain in other counties the total number of those more or less incapacitated, and therefore a burden on the country, will be sufficiently formidable.

Feeble-Minded Inebriates.

A good deal of criticism has been expended on the Langho Reformatory because some of the women on leaving at once fall back into their drinking habits. At a meeting of the Lancashire Inebriates Board on July 28th Mr. Travis-Clegg said it was futile to condemn the institution because a few of the unfortunate irresponsible women relapsed immediately upon their discharge and took the first opportunity to slake a thirst for alcohol which had been accumulating for three years. As he said, 60 per cent. of these women were "feeble-minded" and almost certain to relapse. They cannot justly be sent to prison, and the asylums are already too full. But it is necessary in the interests of the race that they should not contaminate others, and, above all, that they should not bear children. Mr. Travis-Clegg therefore cannot understand why those in authority do not take advantage of the reformatory. The cost of maintenance (5*s.* 3*d.* per week) is less than the cost of maintenance in prison and the results are quite as good.

River Cleansing.

To cleanse our rivers and keep them clean is a never-ending task, as the Mersey and Irwell joint committee has long since discovered. But during the last two years considerable improvement has taken place in the treatment of sewage in the large area under supervision, so that, taking all the various authorities together, there are 82 sets of efficient works to 41 non-efficient. In some of the latter improvements and extensions are in progress. Ten of the authorities, however, are not making extensions or improvements, and the committee therefore has to employ pressure. The local authorities are slow to spend money on what seems to them unremunerative enterprises, and the tendency is to do no more than supply the needs of the moment. After a few years, therefore, the works gradually become insufficient to deal with the sewage, owing to the growth of population and the increasing consumption of water. Unfortunately, the committee can do nothing to prevent "an anticipated inefficiency," but must wait until the actual inefficiency is manifest. Some works, therefore, are always more or less inefficient, and one of the duties of the committee is to see that improvements and extensions are put in hand at the earliest moment and with sufficient energy. That this is done is shown by the fact that of the 41 non-efficient works "31 schemes for extension are either in progress or nearing the point of actual construction." Last year (1909) was marked by exceptional rainfalls and floods, which cleansed the river-beds and washed away a large amount of accumulated rubbish, throwing a heavy burden on the Ship Canal in the way of additional dredging. The chairman (Dr. Hewitt) at the meeting on August 2nd, said he was sorry to see that the works of the majority of the county boroughs were non-efficient. It might have been expected that they would have been ambitious of setting a good example to the smaller authorities.

August 16th.

SCOTLAND.

(FROM OUR OWN CORRESPONDENTS.)

Operation of the Notification of Births Act (1907) in Glasgow.

IN a report on the operation of this Act in Glasgow the medical officer of health of the city indicates several interesting details which come into view on summarising the statistics. The births during the past year numbered 23,503, of which 877, or 3·7 per cent., were still-births. In 97·8 per cent. of the live births occurring the requirements of the Notification of Births Act were complied with. This ratio is considerably greater than that obtained in the previous year, which was 83·9 per cent. Of the 23,503 births notified, 11,012, or 46·9 per cent., were attended medically either at home or in institutions, whilst 12,491, or 53·1 per cent., had no medical attention. The corresponding ratios for the previous year were 45 and 55 per cent. respectively. The number of births attended medically varied greatly in the different wards of the city, the maximum being 90·4 per cent. in one ward, while the minimum of 22·2 per cent. was reached in another. Until the advantages of a Midwives Act have been extended to Scotland and an official register of midwives prepared, it will not be possible to distinguish accurately between the births attended by certified and uncertified women, although it would appear that the number of trained women practising midwifery is on the increase. Excluding institutions throughout the city, the percentage of still to live births medically attended was 3·5 per cent., while in the case of births non-medically attended it was only 3·1 per cent. Dr. A. K. Chalmers points out, however, in connexion with this, that while there is every reason to believe that medical men are notifying the still-births occurring under their care, many midwives are still in ignorance of the fact that such births should be notified. This is not likely to be rectified until registration of still-births is insisted on and some restriction is placed upon interment without certification. As regards the incidence of puerperal fever, of the 108 cases registered last year 37 had been under medical care from the beginning, while 71 were attended by midwives at the onset of labour, although in 17 of these medical assistance was subsequently obtained. Dr. Chalmers again points out that before accepting the greater relative incidence of puerperal fever in cases attended by midwives as resulting from defective technique, it is necessary to remember that the midwives' practice is more frequently among the poorer classes and in the smaller houses, and that these are factors which, while incapable of express statement, must be taken into account when considering the difference in the incidence.

Medical Inspection of Schools in Kincardineshire.

The assistant school medical officer of Kincardine, Dr. Robert King, has issued his first report from March last, in which only children under 7 years are dealt with. 545 boys and 554 girls were examined, and of these 902 were defective in some particular, but only a comparatively small number of the defects were serious. Statistics are given as to the height and the weight of the children, and it is noted that these do not show any great difference between school children in the poor parts and those in more prosperous parts. The average for the county is up to, or over, the standard, except in the case of girls of 5 years, where the height is 0·3 below the corresponding standard figure. Dr. King remarks that it would be well for children under 5 years to be excluded from school, both on the score of their own health and for the sake of the teacher. Of stuffy class-rooms he notes "that casual observation of many of the schools showed lighting and ventilation seriously defective, and one would gladly see open-air classes more frequently held."

The Medical Officer of Health of Aberdeen: Increase of Salary.

At a meeting of the public health committee held last week it was agreed by a majority of 7 to 2 to increase the salary of Dr. Matthew Hay, the medical officer of health, from £450 to £550 per annum. An amendment to increase by only £50 was defeated. The subcommittee, in its report anent the increase of salary, stated that since Dr. Hay's salary was fixed in 1892 his duties had largely increased. For instance, more attention was now being given to questions connected with infant mortality and the control of tuberculosis. Greater supervision was also required with respect to workshops, bakehouses, dairies, and the inspection of meat. The work of the city hospital had also increased. The subcommittee at the conclusion of its report states that, having regard to the nature, extent, and responsibility of the duties performed, it was of opinion that the salary should be increased by £100 per annum.

Ross-shire Medical Officers.

At a meeting of the Ross-shire county education committee in Dyl on August 2nd Dr. W. Bruce, medical officer of health of the county, was appointed senior medical inspector of schools for the county, with an honorarium of £50 per annum. Dr. Middleton has been appointed medical officer for the mainland, and Dr. D. Murray, Stornoway, for the Lewis.

Death of the Matron of Dundee Royal Infirmary.

The death occurred in the Dundee Royal Infirmary on Thursday, August 4th, of Miss J. M. Duff, matron of that institution. Miss Duff, who was a native of Aberdeenshire, received her nursing experience at the Charing Cross Hospital, London. In 1896 she was appointed matron of Dundee Royal Infirmary. Since that time the nursing and domestic staff has been largely increased by numerous important additions made during her term of office, particularly as affecting the Maternity Hospital and the Caird Cancer Pavilion. The high place which Dundee Royal Infirmary now occupies in the

nursing world is largely due to Miss Duff's energy and ability. Her death will be deeply regretted not only by the directorate and citizens of Dundee, but more especially by the large number of nurses trained under her supervision, who regarded her with the warmest affection and esteem.

August 16th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Report of the Local Government Board.

OF special interest to medical men is the statement in the report of the Local Government Board (Ireland) for the year ending March 31st last, that in the year under review 13 boards of guardians adopted graded scales of salaries for their medical officers. Scales are now in force in 77 unions, or a little less than half the unions of the country. The salaries usually start at figures higher than were previously paid and progress by regular periodic increments to fixed maxima. Curiously enough, it is in the poorer parts of the country—Leinster and Munster—that the guardians have been most ready to agree to graded scales, whereas in Ulster only a few boards have considered the question. The general death-rate for towns has fallen for the first time on record below 20 per 1000—19·2. This still compares unfavourably with the death-rates in the 76 great towns of England and Wales—14·7 per 1000, and in the 8 principal towns in Scotland—16 5 per 1000 (in 1908). The death-rate in the city of Dublin was very high—22·3 per 1000. The ratio of pauperism in Ireland has been practically unchanged for a number of years past. The average of pauperism for the year under review was equivalent to 1 in every 44 of the estimated population, or 22 per 1000—those relieved indoor being about 10, and those outdoor about 12 per 1000. An encouraging feature is the increase by 309 of the number of children boarded out from unions. During the year steps were taken to enforce the Dairies and Cowsheds Order of the Board in 216 out of 308 sanitary districts. There are still, however, several districts where dairying is an important industry in which no steps have been taken to supervise the production of milk.

Crime in Ireland.

The criminal statistics of the Registrar-General for Ireland show that the indictable offences reported to the police in 1909 were 9873, being 383 less than in the previous year. The number of cases of drunkenness decreased by 5519. Offences against the person decreased from 627 in 1908 to 523. There were 29 charges of murder, 9 being of infants under 1 year of age. Of the total number of offences 30·6 per cent. were committed in the towns, though the total population of the towns is only 20·7 per cent. of the total population.

Spitting in the Streets.

At the last meeting of the Dublin corporation an attempt was made to deal with the spitting nuisance, which is so prevalent in Dublin, but the corporation appears not to have considered the question seriously and the resolutions were defeated.

The Epidemic of Measles in Belfast.

At a meeting of the city council of Belfast held on August 2nd it was reported that the death-rate from all causes was 19·1 in the period between June 19th and July 16th, that from zymotic diseases being 4 1, and that from chest diseases 5·1 per 1000 of the population, while in the corresponding period of last year the death-rate from all causes was 13 6, that from zymotic diseases 1·2, and that from chest affections 4·1. The excess in the death-rate is, it is said, "mainly due to the epidemic of measles." The chairman of the health committee said 77 deaths had occurred within the last fortnight. The council decided not to make measles notifiable because it thought that the removal of measles cases to hospital did not materially prevent the spread of the disease, and because the cost would be prohibitive. A table published in the "Registrar-General's Quarterly Summaries and Weekly Returns" shows that 451 deaths occurred from measles in Belfast up to July 30th, a figure in excess of that representing the deaths in the same period from all the other principal epidemic diseases—viz., 332.

The Belfast District Lunatic Asylum.

The eighteenth annual report of the Belfast district lunatic asylum for the year ending Dec. 31st, 1909, has just been submitted to the committee of management by Dr. William Graham, resident medical superintendent. The admissions were 278, or 12 more than in the preceding year. Of these 132 were males and 146 were females. 62 males and 79 females were discharged, and 63 males and 48 females died; at the close of the year there were 1218 in the asylum, 563 males and 655 females. Dr. Graham points out that half a century ago the total insane population of Great Britain and Ireland was about 25,000, while to-day it is about 160,000. During the same period insanity has increased in Ireland from 6820 cases to 23,931, the ratio of the insane to the general population in 1861 being 1 in 850, in 1881 1 in 400, and in 1891 1 in 280, while to-day it is about 1 in 180. Turning to the financial side, the gross expenditure for the financial year ended March 31st, 1909, amounted to £27,131 1*s.* 9*d.*, which, after deducting receipts from paying patients and miscellaneous sources, gives the low net capitation of £20 15*s.* 1*d.* per annum. Of the entire expenditure £11,967 12*s.* 3*d.* have been defrayed out of the Local Taxation (Ireland) Account at the capitation rate of 4*s.* a week; £314 7*s.* 4*d.* have been received from the General Prisons Board for maintenance of criminal lunatics, and £696 6*s* 3*d.* received on behalf of paying patients. The net balance payable out of the General Purposes Fund of the city is £12,727 15*s.* 4*d.*, or £10 11*s.* 7*d.* as the average net cost to the ratepayers of each patient chargeable to the city. Dr. Graham discusses the causes of the increased amount of insanity, and shows that in the future educational methods will play a larger part than in the past in the prevention of mental diseases.

Down District Asylum.

The report of the resident medical superintendent (Mr. M. J. Nolan) for the year 1909, which has just been issued, shows that 147 patients (76 men and 71 women) were admitted into the Down Asylum during the 12 months, being 4 in excess of the previous year. The total number of cases under care amounted to 482 men and 417 women, 47 men and 43 women were discharged, and 26 men and 31 women died. The population remaining at the end of the year was 752—that is, 409 men and 343 women. The average cost of each patient for the year was £22 17*s.* 5*d*, as against £23 9*s.* 7*d.* for the previous year, a decrease of 12*s.* 2*d.* per head, while the net average cost (deducting repayments of loans, receipts from paying patients, and other miscellaneous receipts from the gross expenditure) was only £21 1*s.* 7*d.*, as against £21 19*s.* 2*d.*, a reduction of 17*s.* 7*d.* per head.

County Antrim Infirmary.

At a recent meeting of the management committee of this hospital fears were expressed that unless the annual income was increased the number of beds would have to be reduced. The Antrim County Council contributes only £500 annually, a sum much less than that contributed by other county councils for their principal medical institutions. It has been decided to make a further appeal to the county council of Antrim for support.

August 16th.

VIENNA.

(FROM OUR OWN CORRESPONDENT.)

Professor Ehrlich's New Remedy for Syphilis.

THE success which has attended the use of Professor Ehrlich's preparation "606" in the treatment of syphilis has attracted much attention in this city, and the new remedy has been frequently prescribed in the hospitals. Some of the daily newspapers have even published articles on the subject, an ill-advised proceeding which a recent report issued by the dermatological clinic in Vienna denounced in severe terms, but without producing any effect on the individuals concerned. Medical reports of the results produced by injections of the new remedy show that the experiences of the various observers have not been uniform. In a series of cases described by Dr. Kreibich in Prague unpleasant after-effects, such as pain, general malaise, and disorders of the eyes comparable to those produced by atoxyl, were observed,

and the report from this clinic cautions the profession against too sanguine an attitude with regard to the new treatment; the suggestion, however, is made that the results achieved have been influenced by the unstable nature of the preparation. In another report, by Dr. von Zeissl, the results obtained in 22 cases are described as excellent, but it is added that he took the precaution of examining the eyes and the state of the kidneys of each patient before treatment; he considers that the new remedy is contra-indicated whenever these organs are impaired in even the slightest degree. In all cases there was a rapid subsidence of all the symptoms of recent syphilis, and inveterate manifestations, which proved refractory to all other treatment, showed an improvement within ten days after the injection.

Mosquitoes in Austria-Hungary.

The unusual weather conditions which have prevailed since April in Central Europe have had some consequences not without interest from a medical point of view. From the beginning of spring to the end of July the rainfall has been 28 per cent. in excess of the average for the corresponding season. Large areas have thereby been converted into swamps, and pools have appeared in many places hitherto dry. The low mean temperature of the spring (2·5° C. under the average) has aided the formation of such pools by lessening evaporation. Hence many places, especially those frequented as health resorts, have become infested by swarms of gnats, mosquitoes, and house flies. Last year a similar, though not so extensive, invasion by the genus culex was reported. This year the officers of health were cautioned to be on the look-out for any effects on the public health produced by the mosquitoes, but up to the present time no definite epidemic of any mosquito-borne disease has been observed except in the marshes below Vienna where a focus of malaria was discovered a few years ago. In the swamps of Galicia, however, as well as in the southern districts of the Austrian Empire, a distinct increase of malaria has coincided with the appearance of the gnats and mosquitoes. The health resorts are free from malaria, but the winged visitors are naturally a fruitful source of discomfort. The Ministry of the Interior has issued instructions to the municipalities and other local authorities to prevent the formation of any more pools and ponds, and to take measures for the destruction of insects.

Surgical Treatment of Gangrene of the Lung.

Surgical treatment of gangrene of the lung has been sufficiently rare to justify the report of the following case, which Professor Lotheissen showed recently at a meeting of the Gesellschaft der Aerzte in Vienna. The patient, a woman aged 45 years, after a severe attack of pneumonia presented symptoms of cachexia; her sputum also smelt very offensively and was very copious. Examination revealed over the right lower lung, near the vertebral column, amphoric breathing and all the other symptoms of a cavity; there was also an empyema on the same side. X ray examination showed that the right half of the thorax was comparatively opaque to the rays, but between the fifth and sixth rib at the level of the scapula the shadow was much lighter and there was also a clear spot above it. This was the gangrenous focus with air in it. Under local anæsthesia the empyema was tapped below the eighth rib and the liquid was removed. No communication with the gangrenous part of the lung was found, but a bridge of solid tissue, about two inches thick, separated the two areas. The sixth rib was then resected for a distance of three inches, beginning laterally from the transverse process; this also was done under local anæsthesia, the patient being to all appearance nearly *in extremis*. A mass of tissue, consisting of pleura and lung fused together, had to be removed, and then a cavity about the size of a man's fist, and containing necrosed lung substance was opened up. The smell was horrible. The open lumen of a bronchus having a diameter of one-third of an inch was seen, through which the pus had been drained out and expectorated. The cavity was packed and healing progressed favourably. The sputum at once lost its smell and fell to about one ounce daily, having amounted before operation to 25 ounces daily. An interesting feature of the case was the fact that the lumen of the bronchus could be made to close simply by repeatedly touching with silver nitrate. In the majority of similar cases a secondary closure of the bronchus by suture had proved necessary.

August 15th.

NOTES FROM INDIA.

(FROM OUR OWN CORRESPONDENTS.)

The Health of the Punjab.

INTERESTING information regarding the health of the Punjab is contained in the resolution published in the current provincial *Gazette*. In 1909 the climatic conditions of the province were favourable to public health. The birth rate was the lowest since 1904, but healthy conditions of the year so reduced the death-rate that there was an increase in population of 4·2, as compared with a decrease of 8·03 in the previous year. The low birth-rate was the direct and inevitable consequence of the terrible epidemic of malaria which swept over the province in the autumn of 1908. The fall in the death-rate from 50·72 to 30·89, the lowest figure for the decade, was mainly due to diminished virulence of malaria, and cholera claimed considerably fewer victims than in the previous year, and it is hoped that deaths from this disease will decrease as improved sanitary conditions are introduced. It was noticed that no less than 18 out of 26 districts infected owed the presence of the disease to pilgrims returning from Baisaki fair at Hardwar. Investigation showed that infection in all probability came from the sacred Bhimgoda tank, much resorted to by Punjabis, which from its position was specially liable to infection. The Government of the United Provinces has been addressed on the subject and is considering if measures can be adopted to protect this particular tank from the possibility of infection. With regard to plague there was a slight increase in mortality as compared with the previous years and the districts of Mozaffargarh and Multan were infected practically for the first time. The epidemic in Multan city was very severe, the death-rate amounting to 17·82. It is reported that people are increasingly apathetic with regard to preventive measures, and plague staffs have still to fight an uphill battle, active coöperation by the people being conspicuously absent. There is, however, an increasing tendency on the part of the people to evacuate infected villages and neighbourhoods, and it is hoped that the generous medical relief afforded to them by the plague staff will in time gain their confidence and coöperation in antiplague measures. One effect of the severe epidemic of malaria in the previous year was to impress upon Government the need for adequate preparations in case of serious recrudescence. An elaborate system was organised for free distribution of quinine to the poor and for distribution at cost price to those who could pay. It is considered that the precautions contributed materially to the mild form which the disease took in the autumn of 1909.

An Epidemic of Cholera in Kashmir.

In less than a fortnight no less than three officers—namely, Lieutenant C. E. Litchfield, Royal Warwickshires; Captain K. Hawdon, 21st Cavalry; and Colonel Merewether, late of the 7th Hariana Lancers—have died from cholera in Kashmir, and there is, unhappily, too much reason for apprehending that the disease must have by this time assumed very serious proportions. It appears that since June 4th, when the disease first began to be prevalent in Kashmir, up to July 14th, 1040 cases of cholera and 572 deaths occurred among the native population of the State, the Anantnag tehsil being by far the worst affected area. Among Europeans there had up to the same date been only three cases, all of which, however, had ended fatally. The epidemic on July 14th showed no signs of abating, but possibly some improvement may have since taken place. The insanitary condition of Islamabad has always been a source of danger to Srinagar, and it would appear that in the present case it has been largely responsible for the severe incidence of the disease, though Srinagar itself is not exactly a pattern of cleanliness.

Medical Registration.

The recent agitation about private medical practitioners has stirred up the Ayurvedic and Unani Medical Association of Bombay into activity and it has petitioned the Governor of Bombay stating that members of the British Medical Association in Bombay have submitted a petition to His Excellency in which, while defining unqualified medical men, they have also included *hakims* and *vaids*. The members of the association have prayed for a Medical Registration Act

and for certain rights and privileges for qualified medical men, by which they mean those who have graduated in Indian universities or those who have secured diplomas from any of the British, foreign, or colonial medical institutions recognised by the General Medical Council of Great Britain and Ireland. The rights and privileges they pray for are: (1) Death certificates; (2) medical fees and charges; and (3) certificates of lunacy, &c.—i.e., that their certificates should be held valid and their fees and charges allowed by any court. The petitioners are enjoying the said rights and privileges as far as Clauses 2 and 3 are concerned. The British Medical Association of Bombay petitions for sole rights and has not taken into consideration the right of Indian medical practitioners who have been enjoying the rights from the beginning of British rule in India and who have never been the cause of any popular complaint. The petitioners then point out the antiquity of their profession and explain that they do not in any way endanger the rights and privileges of members of the British Medical Association, for they neither use their prescriptions nor follow them unscientifically. The Ayurvedic and Unani Medical Association therefore, petitions against a Medical Registration Act being passed and asks that in the case of such being passed its claim be taken into consideration.

Deaths Caused by Wild Animals.

A review of the returns showing the results of measures adopted in the Punjab for the destruction of wild animals and venomous snakes last year appears in the current issue of the *Punjab Gazette*. Wild animals responsible for the loss of human life included wolves and leopards, a bear, and a hyæna; besides these there was the reported appearance of a tiger at Gurgaon. Cattle suffered to a larger extent from the depredations of wild animals in 1909 than in the previous year, the number reported killed last year being 2268, compared with 1643 in 1908. This increase is said to be due to the ravages of leopards in the Hoshiarpur and Kangra districts. The damage done by wolves during 1909 appears to have been approximately the same as in the previous year, but the districts chiefly visited by them seem to have changed. In Multan, for instance, the destruction of 118 wolves was reported in 1908; in 1909 only 1 was killed. Last year Meanwali lost only one-fourth of the number of cattle killed in 1908; Hoshiarpur four times as many. The total number of wild animals reported as destroyed rose from 1228 in the previous year to 1904 in the year under review, the most important being wolves 1000, leopards 211, and bears 187. The total number of snakes reported as killed fell from 4228 to 4089. The review concludes with a complaint that the returns are not, and never have been, very trustworthy, and their possible abolition is under consideration.

July 16th.

Obituary.

FREDERICK WEATHERLY, M.R.C.S. ENG., L.S.A., J.P.

Mr. Frederick Weatherly died at his residence, Hillside, Portishead, Somerset, on August 11th, in his ninety-first year. The deceased was the son of a country medical practitioner and received his medical education at St. Bartholomew's Hospital, qualifying as M.R.C.S. and L.S.A. in 1841. In 1846 he commenced professional work at Portishead, Somerset, retiring after 40 years of hard work, during which time he had enjoyed an extensive practice. He had a wonderful record during his long life in connexion with the Poor-law administration, and until quite recently attended the meetings of the Long Ashton board of guardians over which he presided for many years. He was a magistrate for the county of Somerset, and at one time held the following appointments: chairman of the Bedminster and Long Ashton board of guardians, member of the Somerset county council, chairman of the Somerset technical education committee, and Commissioner of Taxes. Mr. Weatherly had a large circle of friends, Gladstone being among them.

Mr. Weatherly's family consisted of eight sons and two daughters; one of his sons, Dr. Lionel Weatherly, is well known for his work in connexion with the erection of the Winsley Sanatorium for Consumptives, and another, Mr. F. E. Weatherly, a barrister on the Western Circuit, is the well-known song writer.

ROBERT WILLIAM COË, F.R.C.S. ENG.,

HONORARY CONSULTING SURGEON TO THE BRISTOL GENERAL HOSPITAL.

Mr. R. W. Coë, who died at his residence, 7, Pembroke-road, Clifton, Bristol, on August 11th, in his eighty-ninth year, was the doyen of the medical profession in Bristol. He received his medical education at St. George's Hospital, obtained the M.R.C.S. in 1844, and shortly after qualifying commenced professional work at Bristol, where he soon became extremely popular and obtained an extensive general practice. Eight years later he was admitted a Fellow of the Royal College of Surgeons of England and was appointed surgeon to the Bristol General Hospital, becoming later lecturer on surgery at the Bristol Medical School. Mr. Coë contributed some articles to the medical press and displayed in them a wide range of surgical and anatomical knowledge. He was at the time of his death honorary consulting surgeon to the Bristol General Hospital, the Bristol Children's Hospital, and the Lock Hospital for Women, Bristol.

MARY ADAMSON MARSHALL, M.D. PARIS, L.R.C.P. IREL. & L.M.

Mrs. Mary Adamson Marshall, M.D., of Cannes and Watford, died on August 8th, at 1, Rickmansworth-road, Watford, at the age of 74 years. She was the widow of the late Claude Marshall, solicitor, of Greenock. She received her medical education at the London School of Medicine for Women, in Edinburgh, and in Paris. She obtained her M.D. degree of Paris in 1879, and in 1880 became L.K.Q.C.P. Irel. and L.M. She formerly practised in London in Stanley-gardens, Kensington Park, and at Upper Berkeley-street, and later for some years at Cannes, France. She was late senior physician to the New Hospital for Women, Marylebone, and late medical officer of Portobello-road Provident Dispensary for Women and Children. She had written various articles to the medical press, notably "Sur le Rétrécissement Mitral, sa Fréquence plus grande chez la Femme que chez l'Homme," and "Destruction of Gall-bladder, with Pyæmia." The funeral took place at Woking.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Gustav Fischer, the eminent Jena medical publisher. He held doctor's degrees in both medicine and philosophy.—Dr. H. A. Beach, formerly lecturer on surgery in Harvard University.—Dr. Berestneff, *privat-docent* of bacteriology in the University of Moscow.—Dr. Marc Dufour, professor of ophthalmology in the University of Lausanne.—Dr. Manuel Dominguez, formerly professor of therapeutics in Mexico.—Dr. Magail, formerly professor of clinical midwifery in Marseilles.

Medical News.

FOREIGN UNIVERSITY INTELLIGENCE.—*Prague (German University):* Dr. Hermann Schloffer, Professor of Surgery in Innsbruck, has been appointed Professor of Surgery.—*Tomsk:* Dr. N. V. Vershin has been appointed Professor of Pharmacology.—*Tübingen:* Dr. Reich has been recognised as *privat-docent* of Surgery.—*Vienna:* The duties of the late Professor Zuckerkandl's Chair of Descriptive and Topographic Anatomy have been temporarily carried on by his pupil and assistant, Dr. Julius Tandler, and this gentleman has now been elected by the College of Professors as his successor.—*Zürich:* Dr. W. Silberschmidt has been appointed Ordinary Professor of Hygiene and Bacteriology and Director of the Institute of Hygiene.

LITERARY INTELLIGENCE.—Messrs. J. and A. Churchill have a new edition of Volume III. of "Allen's Commercial Organic Analysis" just ready for publication. This volume has been rewritten under the editorship of Mr. W. A. Davis, B.Sc., and Mr. S. S. Sadtler, S.B. The subjects and authors are as follows: Hydrocarbons, by F. C. Garrett; Naphthalene and its Derivatives, Phthalic Acid and the Phthaleins, by W. A. Davis; Bitumens, Anthracene and its Associates, Phenols, by S. S. Sadtler: Aromatic Acids, by E. Horton; Gallic Acid and its Allies, by W. P.

Dreaper; Modern Explosives, by A. Marshall. It will be seen that each subject is handled by an expert in his department.

THE annual meeting of the International League against Epilepsy will be held in Berlin on Oct. 4th and 7th, at 2 P.M., in the lecture theatre of the psychiatric clinic of Professor Dr. Ziehen. Professor Tamburini (Rome) will act as president. The business before the meeting consists mainly of the reception of the reports from the international committees upon the work of the league in the different countries, with reference to the prevalence of epilepsy, the numbers of existing institutions for epileptics, &c. Communications will be received from Dr. Veith (Berlin) upon epilepsy and crime, and Dr. Muskens (Amsterdam) upon the patho-physiology of epilepsy. A complete programme will be issued later on.

Messrs. Down Bros., Limited, of St. Thomas's-street, have had the whole of their exhibit of surgical instruments and hospital furniture at the Brussels Exhibition destroyed by the calamitous fire. The actual cost of the articles, amounting to nearly £2000, is covered by insurance, but the loss is none the less severe as immense pains had been taken in preparing the exhibit which was in a sense unique, consisting exclusively of their own original designs or those carried out for British surgeons with British hands in their own workshops, all of which were illustrated in a handsome catalogue printed in French and English issued at the exhibition. Fortunately the jury had already paid their visit of inspection and it may be hoped had formed a favourable conclusion.

BOOKS, ETC., RECEIVED.

BAILLIÈRE, TINDALL, AND COX, London.
A Synopsis of the British Pharmacopœia and of the Poison Laws of Great Britain and Ireland. By H. Wippell Gadd (of the Middle Temple, Barrister-at-Law; formerly Lecturer on Pharmacy). With Analytical Notes and Suggested Standards by C. G. Moor, M.A., F.I.C. Seventh edition. Price 1s. net.

BERTRAND, ANTIGA CASA (JOSÉ BASTOS & CA), Rua Garrett, Lisbon.
Defeza Sanitaria da Europa contra a Peste. Hygiene e Prophylaxia Internacional. Do Doutor Julio Gonçalves. Price not stated.

CHURCHILL, J. AND A., London.
Allen's Commercial Organic Analysis. Volume III. By the Editors and following Contributors: F. C. Garrett, W. P. Dreaper, Edward Horton, A. Marshall. Fourth edition. Entirely rewritten. Edited by W. A. Davis, B.Sc., A.C.G.I., and Samuel S. Sadtler, S.B. Price 21s. net.

COLLINGRIDGE, W. H. AND L., London.
Profitable Fruit-growing for Cottagers and Small Holders of Land. Gold Medal Essay. By John Wright, V.M.H., F.R.H.S. Written for the Worshipful Company of Fruiterers. Ninth edition, revised and enlarged. Price 1s.

DOESBURGH, VAN, S. C., Leiden.
Tuberkulose und Immunität. Von R. P. Van Calcar, Professor an der Reichsuniversität in Leiden. Price not stated.

FISCHER, GUSTAV, Jena.
Das Virulenzproblem der pathogenen Bakterien. Epidemiologische und klinische Studien von der Diphtherie ausgehend. Von Edv. Laurent, Stockholm. Price M.30.
Das System der Biologie in Forschung und Lehre. Eine historisch-kritische Studie. Von Dr. Phil. S. Tschulok, Zürich. Price M.9.
Das Problem der Eiweissanaphylaxie, mit besonderer Berücksichtigung der praktischen Antigendiagnose pro foro. Von Dr. Hermann Pfeiffer. Price M.6.
Die übertragbare Genickstarre. Von Professor Dr. Otto Busse. Abdruck aus dem Klinischen Jahrbuch. Price M.12.
Handbuch der Anatomie und Mechanik der Gelenke. Unter Berücksichtigung der bewegenden Muskeln. Von Rudolf Fick. Zweiter Teil: Allgemeine Gelenk- und Muskelmechanik. Price, paper, M.12; bound, M.14.
Handbuch der Gesamten Therapie. In sieben Bänden. Herausgegeben von Dr. F. Penzoldt und Dr. R. Stintzing. Vierte umgearbeitete Auflage. Zwölfte Lieferung. Price M.4.50.
Der Nukleinstoffwechsel und seine Störungen. (Gicht, Uratsteindiathese u.a.) Von Dr. Theodor Brugsch und Dr. Alfred Schittenhelm. Price M.4.50.
Grundriss der Mechanotherapie (Massage und Gymnastik). Für Studierende und Aerzte. Von Dr. med. Fritz Scholz. Mit einem Vorwort von Geheimrat Professor Dr. Brieger. Price M.4.
Das Altern und der physiologische Tod. Ergänzungen zur physikalischen Wachstumslehre. Von M. Mühlmann (M. Millman). Price M.1.20.
Handbuch der Vergleichenden Physiologie. Herausgegeben von Hans Winterstein in Rostock. Siebente Lieferung. Band II. Physiologie des Stoffwechsels. Physiologie der Zeugung. Erste Hälfte. Achte Lieferung. Band III. Physiologie der Energieproduktion. Physiologie der Form. Zweite Hälfte. Price M.5 each part.

FROWDE, HENRY, AND HODDER AND STOUGHTON, London.
Oxford Medical Publications. Sprains and Allied Injuries of Joints. By R. H. Anglin Whitelocke, M.D., M.C. Edin., F.R.C.S. Eng. Second edition. Price 7s. 6d. net.

GRESHAM PUBLISHING COMPANY, London.
Human Anatomical Model (Female). A Life-size Reproduction of the Dissections of the Various Parts of the Human Body. With a Descriptive Index by Frederick Norman, F.R.C.S. Eng., and W. G. Stone, M.D. Oxon., F.R.C.S. Eng.

HILL, WALTER, London.
The Holidays, 1910. Where to Stay and What to See. Fifteenth edition. Price 1s.

HÖLDER, ALFRED, Wien und Leipzig.
Die durch Gonokokken verursachten Krankheiten des Mannes. Ihre medikamentöse und chirurgische Behandlung. Von Dr. S. Baumgarten. Price 5s.

HOST, ANDR. FRED. & SON, Kobenhavn.
Mikroskopiske Undersogelser over Bugspytkirtelens, Normale og Patologiske Anatomi. Hvorunder forholdene ved en Del Tilfælde af Sukkersyge. Af K. A Heiberg. Price not stated.

KARGER, S., VERLAG VON, Berlin.
Die Bakteriologische Untersuchung im Dienste der Diagnostik und Prognostik der puerperalen Infektion. Von Professor Dr. W. Zangemeister. Price M.1.50.
Praktische Winke für die chlorarme Ernährung. Von Professor Dr. H Strauss. Price M.1.
Die Kopulation der Netzhaut mit der Aderhaut durch Kontaktverbindung zwischen Sinnesepithel und Pigmentepithel. Ein bisher in Anatomie, Physiologie, und Pathologie des Auges, besonders in der Pathogenese der Netzhautablösung, nicht gewürdigtes mechanisches Moment. Von Dr. R. Halben. Price M.1.
Jahrbuch für Kinderheilkunde und Physische Erziehung. Unter Redaktion von O. Heubner, Th. Escherich, A. Czerny. 72, der dritten Folge 22. Band. Heft I. Ausgegeben am 1 Juli, 1910. Price M.36 per annum.

KLINKHARDT, DR. WERNER, VERLAG VON, Leipzig. BAILLIÈRE, TINDALL, AND COX, London. G. E. STECHERT AND CO., New York. SOCIETÀ EDITRICE LIBRARIA, Milano. "PRAKTICHESKAIA MEDITSINA," St. Petersburg.
Aus den Hamburger Staatskrankenhäusern. Pathologisch-anatomische Tafeln nach frischen Präparaten. Mit erläuterndem anatomisch-klinischem Text. Unter Mitwirkung von weiland Professor Dr. Alfred Kast. Weiterherausgegeben von Professor Dr. Eugen Fraenkel und Dr. Theodor Rumpel. Vollständig in 26 Lieferungen. Lieferungen I.–XII. Im Abonnement 5 Mark p. Lieferung. Einzelne Tafeln, M.1.50.

LAURIE, T. WERNER London.
The Mummy Moves. By Mary Gaunt. Price 6s.
Life and Sport on the Norfolk Broads in the Golden Days. By Oliver G. Ready, B.A. Price 7s. 6d. net.
Chats on Photography. An Easy Guide for Beginners. By W. Wallington. Price 6d. net.

LEHMANN, J. F., VERLAG VON, München.
Jubiläumsschrift zum 5 Ojährigen Gedenken der Begründung der lokalistischen Lehre Max von Pettenkofers. II. Band. Die Hauptgrundgesetze der epidemiologischen Typhus- und Choleraforschung in Rücksicht auf die Pettenkoferschc und die Kochsche Auffassung der Typhus- und Choleragenese. Darlegt von Dr. med. Friedrich Wolter in Hamburg. Price M.24.

LIVINGSTONE COLLEGE, Leyton, London, E.
Livingstone College Year-Book. Price 6d.

MALOINE, A., Paris.
Chirurgie du Praticien. Technique des Opérations Courantes et Chirurgie d'Urgence. Par G. Marion. Price Fr.7.
La Fièvre de Malte en France. Par le Docteur Paul Cantaloube (de Sumène). Étude clinique d'après 200 cas personnels. Price Fr.7.

MARHOLD, CARL, Verlagsbuchhandlung, Halle-a.-S.
Die Erkrankungen der Flexura sigmoidea. Von Professor Dr. Th. Rosenheim, Berlin. Price M.1.80.
Enzyklopädisches Handbuch der Heilpädagogik. Herausgegeben von Professor Dr. med. A. Dannemann, Giessen, Hilfsschul-Leiter H. Schober, Posen, und Hilfsschul-Lehrer E. Schulze, Halle-a.-S. Lieferung 6. Vollständig in 10 Lieferungen à M.3.
Die Syphilisbehandlung mit dem Ehrlich-Hata'schen Mittel. (Dioxydiamidoarsenobenzol.) Zusammenstellung der bisherigen Erfahrungen. Von Dr. Johannes Bresler. Price M 1.
Klinik für psychische und nervöse Krankheiten. Herausgegeben von Robert Sommer, Dr. med. et phil. V. Band. 2 Heft. Preis pro Band, M 12.

MILLS AND BOON, LIMITED, London.
The Valley of Achor. By Mrs. Philip Champion de Crespigny. Price 6s.

NISBET, JAMES, AND CO., LIMITED, London.
Gall stones and Diseases of the Bile-ducts. By J. Bland-Sutton, F.R.C.S. Eng. New and revised edition. Price 4s. 6d. net.

PONSONBY, EDWARD, 116, Grafton-street, Dublin.
The Public Health Acts Amendment Act, 1907. By Arthur E. Clery, LL.B., Barrister-at-Law, and J. McWalter, M.A., M.D., D.P.H., Barrister-at-Law. Price 2s.

SPRINGER, JULIUS, Berlin.
Ergebnisse der Chirurgie und Orthopädie. Herausgegeben von Erwin Payr, Greifswald und Hermann Küttner, Breslau. Erster Band. Price, paper, M.20; bound, M.22.50.

TIPOGRAFIA G. U CASSONE, Via della Zecca, N. 11, Torino.
Le Nevrosi del Pneumogastrico. Pel Dottor Enrico de Silvestri. Price not stated.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BARKER, A. E. J., F.R.C.S. Eng., F.R.C.S. Irel., L.R.C.P. Irel., has been appointed to the Consulting Staff of the Convalescent Home for Officers at Osborne.

BLACKBURN, C. B., M.D., Ch.M. Syd., has been re-appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

BURD, C. P., M.R.C.S., L.R.C.P. Lond., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Upton-upon-Severn District of the county of Worcester.

DEVEREUX, W. C., M.B., B.C. Cantab., has been appointed Certifying Surgeon under the Factory and Workshop Act for the Tewkesbury District of the county of Gloucester.

FAIRFAX, E. W., M.B., Ch.M. Syd., M.R.C.S., L.R.C.P. Lond., has been re-appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

FLASHMAN, J. F., B.A., M.B., Ch.M. Syd., has been appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

MACEWEN, H. A., M.B., Ch.B. Glasg., D.P.H., has been appointed Medical Officer of Health for the Counties of Fife and Kinross.

MILLS, A. E., M.B., Ch.M. Syd., has been appointed Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

SMITH, S. A., M.B., Ch.M. Syd., has been appointed Assistant Physician to the Royal Prince Alfred Hospital, Sydney, Australia.

YOUNG, H. C. TAYLOR, M.D., Ch.M. Glasg., has been re-appointed Assistant Gynæcologist to the Royal Prince Alfred Hospital, Sydney, Australia.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BIRMINGHAM GENERAL HOSPITAL.—House Surgeon, Resident Pathologist, and House Physician for six months. Salary £50 per annum, with residence, board, and washing. Also Two Assistant House Surgeons for three months. Salary £40 per annum, with residence, board, and washing.

BOOTLE, BOROUGH OF, HOSPITAL FOR INFECTIOUS DISEASES.—Resident Medical Officer. Salary £120 per annum, with board, washing, and apartments.

BOURNEMOUTH, ROYAL NATIONAL SANATORIUM.—Resident Medical Officer. Salary £10 per month, with board, residence, and washing.

BRIGHTON, SUSSEX COUNTY HOSPITAL.—Assistant House Surgeon, unmarried. Salary £50 per annum, with apartments, board, and laundry.

BRISTOL ROYAL INFIRMARY.—Resident Casualty Officer for six months. Salary at rate of £50 per annum, with board, lodging, and washing

BROADMOOR, CROWTHORNE, BERKS, STATE CRIMINAL LUNATIC ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £200 per annum, with quarters, gas, coal, and attendance.

BURSLEM, HAYWOOD HOSPITAL.—Resident Medical Officer (female). Salary £100 per annum, with board, residence, and laundry.

BURY ST. EDMUNDS, WEST SUFFOLK GENERAL HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

CANCER HOSPITAL, Fulham-road, London, S.W.—House Surgeon. Salary £70 per annum. Also Director of the Electrical and Radio-Therapeutic Department. Salary £150 per annum.

CARDIFF UNION WORKHOUSE.—Assistant Medical Officer. Salary £130 per annum, with rations, apartments, washing, &c.

CARLISLE, CUMBERLAND INFIRMARY.—Resident Medical Officer. Salary at rate of £80 and £100 per annum respectively, with board, lodging, and washing.

CARMARTHEN, JOINT COUNTIES ASYLUM.—Second Assistant Medical Officer, unmarried. Salary £160 per annum, with board, apartments, laundry, &c.

CHELTENHAM GENERAL HOSPITAL.—Surgeon-in-Charge, unmarried. Salary £80 per annum, with board and lodging.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £50 per annum, with board, apartments, and laundry.

DOVER, ROYAL VICTORIA HOSPITAL.—House Surgeon, unmarried. Salary £100 per annum, with board, lodging, and washing.

DURBAN, NATAL, CORPORATION PUBLIC HEALTH DEPARTMENT.—Medical Officer for Municipal Tuberculosis Bureau. Salary £600 per annum.

DURHAM COUNTY HOSPITAL.—House Surgeon. Salary £120 per annum, with board and lodging.

FRENCH HOSPITAL, 172, Shaftesbury-avenue, W.C.—Resident Medical Officer, unmarried. Salary £100 per annum, with board and laundry.

GLOUCESTERSHIRE ROYAL INFIRMARY AND EYE INSTITUTION.—Assistant House Surgeon for six months. Salary at rate of £80 per annum, with board, residence, and washing.

GREENOCK (BURGH) SCHOOL BOARD.—School Medical Inspector. Salary £300 per annum, rising to £350.

HALIFAX, ROYAL HALIFAX INFIRMARY.—Senior House Surgeon, unmarried. Salary £120 per annum, with residence, board, and washing.

LANCASTER (ROYAL) INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with residence, board, attendance, and washing.

LEICESTER BOROUGH ASYLUM.—Junior Assistant Medical Officer, unmarried. Salary £170 per annum, with board, apartments, and washing.

LIVERPOOL, ROYAL SOUTHERN HOSPITAL.—Two House Physicians and Three House Surgeons. Salary at rate of £60 per annum, with board and residence.

MAIDSTONE, WEST KENT GENERAL HOSPITAL.—House Surgeon. Salary £100, with board, residence, and washing. Also Assistant House Surgeon. Salary £60, with board and residence, both unmarried.

MANCHESTER AND SALFORD HOSPITAL FOR SKIN DISEASES.—House Surgeon. Salary £75 per annum, with board and residence.

MANCHESTER CHILDREN'S HOSPITAL, Pendlebury, near Manchester.—Resident Medical Officer, unmarried. Salary first six months £40, and second £50.

MANCHESTER NORTHERN HOSPITAL FOR WOMEN AND CHILDREN, Parkplace, Cheetham Hill-road.—House Surgeon. Salary £80 per annum, with apartments and board.

MANCHESTER, ST. MARY'S HOSPITALS FOR WOMEN AND CHILDREN.—Second, Third, and Fourth House Surgeons for six months. Salary at rate of £50 per annum, with board and residence.

MIDDLESBROUGH, NORTH RIDING INFIRMARY.—Assistant House Surgeon. Salary £75 per annum, with residence, board, and washing.

MILLER GENERAL HOSPITAL FOR SOUTH-EAST LONDON, Greenwich-road, S.E.—Junior House Surgeon for six months. Salary at rate of £80 per annum, with board, attendance, and laundry.

NOTTINGHAM GENERAL HOSPITAL.—Assistant House Surgeon. Salary £100 per annum, with board, lodging, and laundry.

PORTSMOUTH, ROYAL PORTSMOUTH HOSPITAL.—Assistant House Surgeon. Salary £75 per annum, with board, &c.

QUEEN CHARLOTTE'S LYING-IN HOSPITAL, Marylebone-road, N.W.—Resident Medical Officer for four months. Salary at rate of £60 per annum, with board, residence, and washing.

REDHILL, EARLSWOOD ASYLUM.—Assistant Medical Officer, unmarried. Salary £130, rising to £150 per annum, with board, lodging, washing, &c.

ROYAL NAVAL MEDICAL SERVICE.—Fifteen Commissions.

ST. JOHN'S HOSPITAL FOR DISEASES OF THE SKIN, Leicester-square, W.C.—Medical Officer with X ray experience for Light Department. Salary £50 per annum.

ST. MARY'S HOSPITAL FOR WOMEN AND CHILDREN, Plaistow, E.—Assistant Resident Medical Officer, unmarried, for six months. Salary at rate of £80 per annum, all found.

SHEFFIELD ROYAL HOSPITAL.—Assistant House Physician, unmarried. Salary £50 per annum, with board, lodging, and washing.

SHREWSBURY, SALOP INFIRMARY (COUNTY HOSPITAL).—House Physician. Salary at rate of £70 per annum, with board and apartments.

SOUTH AFRICA, SOUTH AFRICAN COLLEGE, Capetown.—Professors of Human Anatomy and Physiology. Salary in each case at rate of £500 per annum, with free passage to Capetown.

SOUTHPORT INFIRMARY.—Resident Junior House and Visiting Surgeon, unmarried, for six months. Salary £70 per annum, with residence, board, and washing.

SUNDERLAND INFIRMARY.—House Surgeon. Salary £80 per annum, with board, residence, and washing.

TRURO, ROYAL CORNWALL INFIRMARY.—House Surgeon, unmarried. Salary £100 per annum, with board, washing, and lodging.

VENTNOR, ROYAL NATIONAL HOSPITAL FOR CONSUMPTION.—Assistant Resident Medical Officer for six months. Salary £100 per annum, with board, lodging, &c.

WANDSWORTH UNION INFIRMARY.—Senior Assistant Medical Officer and Junior Assistant Medical Officers. Salary Senior Assistant Medical Officer £170. Two Junior Assistant Medical Officers £120 per annum, with apartments, rations, and washing.

WEST HAM HOSPITAL, Stratford, E.—Junior House Surgeon. Salary at rate of £75 per annum, with board, residence, &c. Also Honorary Dental Surgeon.

WEST LONDON HOSPITAL, Hammersmith-road, W.—Two House Physicians and Three House Surgeons for six months. Board, lodging, and laundry provided.

WIGAN, ROYAL ALBERT EDWARD INFIRMARY.—Junior House Surgeon. Salary £100 per annum, with apartments and rations.

WINCHESTER, ROYAL HAMPSHIRE COUNTY HOSPITAL.—House Physician.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of a vacancy as Certifying Surgeon under the Factory and Workshop Act at Loughton, in the county of Essex.

Births, Marriages, and Deaths.

BIRTHS.

BURRIDGE.—On August 10th, at Mackenzie-street, Slough, Bucks, the wife of John Harold Burridge, M.R.C.S. Eng., L.R.C.P. Lond., of a son.

EASTERBROOK.—On August 13th, at Crichton House, Dumfries, the wife of C. C. Easterbrook, M.D., F.R.C.P., of a son.

HACKNEY.—On August 11th, at The Mount, High-street, Hythe, Kent, the wife of Clifford Hackney, M.R.C.S., L.R.C.P., of a son.

WALTON.—On August 11th, at Rutland Park Mansions, Willesden Green, the wife of Albert J. Walton, M.S., F.R.C.S., of a daughter.

MARRIAGES.

WATERFIELD—CROWFOOT.—On August 9th, at the parish church, Beccles, Suffolk, Noël Everard Waterfield, F.R.C.S., to Ellen Mabel, younger daughter of W. M. Crowfoot, M.B. Lond., F.R.C.S., of Beccles.

DEATHS.

COË.—On August 11th, at 7, Pembroke-road, Clifton, Bristol, Robert William Coë, F.R.C.S.E., in his 89th year.

MARSHALL.—On August 8th, at Rickmansworth-road, Watford, Mrs. Mary Adamson Marshall, M.D., aged 74 years.

WEATHERLY.—On August 11th, at Hillside, Portishead, Frederick Weatherly, M.R.C.S., C.C. and J.P. for the County of Somerset, aged 90 years.

N.B.—A fee of 5s. is charged for the Insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

THE COST OF SERUM.

THERE are always those who are ready to attribute unworthy motives to the supporters of any new movement. Yet it might be thought that the utility of diphtheritic serum was so well known at present to all who had considered the matter that no one would venture to come forward at this stage of our knowledge of its value and suggest that the mere profit on the manufacture of the serum was the motive force for its recommendation and employment. We find, however, in a recent issue of the *Morning Leader* a letter in which the writer calculates from various data that an enormous profit is made in the preparation and sale of serum. It is worth noting that he omits entirely most of the important elements of cost. He tells us how much a horse may be bought for, and he endeavours to calculate the selling price of the serum which he says is obtained from it, but he omits entirely the keep of the horse, the rent of the institution, the cost of instruments, and the salary of the operator. The testing of the strength of the serum is also a difficult task, and the cost of this will need to be included in the total of the expenses. We should not have thought it necessary to allude to such a letter if it were not that some of the public might imagine that it represented the facts of the case.

The concluding paragraph of the letter is: "Here is the secret of sero-therapy! The manufacture of serums is a highly-paying business, and that is why it is fostered." Here we have a direct accusation that medical men favour serum-therapy because of the large profit made by its manufacture, but as they do not in any way share in this profit it is difficult to see how it can influence them in the use of serum. The medical profession does not accord equal support to all forms of serum; it is only in a comparatively small number of diseases that serum-therapy has been shown to be of undoubted and unsurpassed value.

"CHRISTIAN SCIENCE."

To the Editor of THE LANCET.

SIR,—Will you allow me to point out that in her answers to the coroner, at the late inquest in Chelsea, Miss Bovet did not reply to the coroner's remark that the prayers of the Church could be obtained for nothing, whilst those of Christian Science had to be paid for, by saying that the clergy did not undertake to heal? She said quite distinctly that the prayers of the Church could not be obtained for nothing, inasmuch as every clergyman received a regular income for his duties, part of which was to offer these prayers. If Christian Science practitioners received a regular income the case might be similar, but not till then. The answer of hers which you quote was in answer to another question as to the difference between the prayers of the Church and the prayers of Christian Science, to which she replied that the Church did not attempt to heal by its prayers; and except in isolated cases this is the fact.

I am, Sir, yours faithfully,

August 13th, 1910. FREDERICK DIXON.

THE COCAINE HABIT.

THE Commissioner of Police of Rangoon, Lower Burma, referring, in his report for the past year, to Excise cases, observes: "The cocaine habit is growing by leaps and bounds, and legislative action is necessary to check the growth of this great evil. Cocaine dens are run quite openly, and no effective action can be taken under the existing law. Owing to the drug being about one-fifth the price of opium, it is within the reach of the most indigent, and the after-effects, I am informed, are many degrees worse than those of opium. An opium den is a palace of light compared to the noisome foulness and wretchedness prevailing in cocaine and morphia dens. The *modus operandi* prevailing in these cocaine dens is very simple, yet very effective. The purveyor of the drugs shuts himself up behind an iron-barred door and passes out the cocaine and morphia in one- or two-grain packets to purchasers through a small opening in the wall. There is always a water-closet within the small barred-off room, and, on a raid being made by the Police or Excise Departments, by the time the iron-barred door can be opened the drugs are thrown into the water-closet, which is immediately flushed. The persons using the drugs may on occasion be caught, but, as a rule, the few grains they have in their possession are thrown on the floor, and these persons will not give evidence against the seller for fear of being boycotted in the future. Moreover, they are not the persons we want to get at. The only remedy that I can see is to visit the landlord of the house in which injecting is discovered with rigorous imprisonment. This remedy is not a bit too drastic when one considers the large number of persons being daily ruined, body and soul. I understand that this matter has been brought to the notice of the Government by the Excise Department." Indian papers report that at the Bombay police court on July 23rd two men, named Silvo Cilento and Joseph Lawrence Kegas, were convicted of selling 36 ounces of cocaine without a licence to an informer. The latter paid 540 rupees for the illicit goods, the money having been supplied by the police. The accused, who admitted their guilt, were sentenced to two months' rigorous imprisonment, and to pay a fine of 100 rupees each; or, in default, to undergo 14 days' further imprisonment.

THE FEAR OF PREMATURE BURIAL.

To the Editor of THE LANCET.

SIR,—I should be much obliged if any of your readers would inform me what is the general routine to follow when asked by patients to promise to see that after death they do not run the risk of premature burial. Of course, one naturally promises, and when the time arrives satisfies oneself that death has really occurred. But the patient, in extracting the promise, often speaks of cutting blood-vessels, puncturing the heart, &c., and I should be glad to know what is generally done under the circumstances.

I am, Sir, yours faithfully,

August 13th, 1910. AJAX.

*** It is certainly advisable that the medical man before practising such operations upon a dead patient should receive from the patient testamentary or written directions as to the course to be pursued. We do not consider that a general request to see that premature burial does not occur entails upon the medical man the performance of any operation. It is sufficient that the medical man should satisfy himself in the usual way that the patient is dead.—ED. L.

THE HUMOUR OF 606.

ALL Germany seems to be talking of Ehrlich's new treatment for syphilis. *Simplicissimus*, the well-known Munich comic weekly, has a cartoon showing Ehrlich, with his characteristic cigar, interviewed by a party of civic dignitaries who are begging him to cease removing the great ally of the social purity party.

STONE BLIND.

To the Editor of THE LANCET.

SIR,—Mr. W. Ettles's suggestion in THE LANCET of July 23rd is ingenious, but I think quite unnecessary. "Stone deaf" is simply a variant of "deaf as a stone" or "deaf as a post," and I think it is clear that both with regard to deafness and blindness the words are only meant to express the utter and complete idea of insensibility which one associates with a stone.

I am, Sir, yours faithfully,

Cavendish-square, W., August 10th, 1910. J. Y. W. MACALISTER.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

A DIARY OF CONGRESSES.

THE following Congresses, Conferences, and Exhibitions are announced for the next four weeks:—

August 21st–26th (Brussels).—International Home Education Congress.
" 31st (Sheffield).—British Association for the Advancement of Science.
Sept. 5th–10th (Brighton).—Congress of the Royal Sanitary Institute.
" 10th–14th (Brussels).—Second International Congress on Occupational Diseases.
" 13th–15th (Brussels).—International Congress on Radiology and Electricity.
" 18th–24th (Königsberg).—Eighty-second Congress of German Scientists and Medical Men.

The following additional Congresses are also notified:—

Oct. 5th–8th (Brussels).—Ninth International Tuberculosis Conference.
Nov. 7th–12th (Cape Town).—Twelfth South African Medical Congress.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, August 17th, 1910.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain fall.	Solar Radio in Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks.
Aug. 11	30·15	N.E.	...	116	72	56	55	57	Cloudy
" 12	29·99	S.W.	...	116	77	57	61	63	Raining
" 13	30·07	S.W.	0·06	76	63	58	58	60	Overcast
" 14	30·06	S.E.	0·04	119	75	56	60	64	Cloudy
" 15	29·76	S.	0·02	127	75	57	62	66	Cloudy
" 16	30·08	W.	...	125	75	57	59	62	Cloudy
" 17	29·99	S.W.	...	115	69	59	60	64	Raining

Medical Diary for the ensuing Week.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

POST-GRADUATE COLLEGE, West London Hospital, Hammersmith road, W.

MONDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 12 noon: Pathological Demonstration:—Dr. Bernstein. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. 2.30 P.M., Mr. Dunn: Diseases of the Eye.

TUESDAY.—10 A.M., Gynæcological Operations. 12.15 P.M., Lecture:—Dr. Pritchard: Clinical Pathology. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin. 5 P.M., Lecture:—Mr. Bidwell: Dilation of the Sigmoid.

WEDNESDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. 12.15 P.M., Lecture: Dr. G. Stewart: Practical Medicine. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. B. Harman: Diseases of the Eye. 2.30 P.M., Diseases of Women. 5 P.M., Lecture:—Mr. Addison: Hernia in Infancy.

THURSDAY.—10 A.M., Lecture:—Surgical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Mr. Dunn: Diseases of the Eye.

FRIDAY.—10 A.M., Gynæcological Operations. Medical Registrar: Demonstration of Cases in Wards. 2 P.M., Medical and Surgical Clinics. X Rays. Operations. Dr. Davis: Diseases of the Throat, Nose, and Ear. 2.30 P.M., Dr. Abraham: Diseases of the Skin.

SATURDAY.—10 A.M., Dr. Saunders: Diseases of Children. Dr. Davis: Operations of the Throat, Nose, and Ear. Mr. B. Harman: Diseases of the Eye. 2 P.M., Medical and Surgical Clinics X Rays. Operations.

LONDON HOSPITAL MEDICAL COLLEGE (UNIVERSITY OF LONDON), Clinical Theatre, London Hospital, Mile End-road, E.

MONDAY.—2 P.M., Clinical Demonstration: Dr. Wall: Diseases of the Lungs.

TUESDAY.—2 P.M., Clinical Demonstration: Dr. Grünbaum: Diseases of the Kidneys.

WEDNESDAY.—2 P.M., Clinical Demonstration: Dr. Hutchison: Diseases of the Digestive System and Children's Diseases

THURSDAY.—2 P.M., Clinical Demonstration: Dr. T. Thompson: Diseases of the Nervous System.

FRIDAY.—2 P.M., Clinical Demonstration: Dr. L. Smith: Diseases of the Heart and Vessels

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (22nd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M.), St. Mark's (2.30 P.M.), Central London Throat and Ear (Minor 9 A.M., Major 2 P.M.),

TUESDAY (23rd).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.), Chelsea (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M., Ophthalmic, 2 P.M.), Tottenham (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

WEDNESDAY (24th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Ear (2 P.M.), Royal Orthopædic (3 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M., Dental, 2 P.M.), Tottenham (Ophthalmic, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

THURSDAY (25th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Royal Orthopædic (9 A.M.) Royal Ear (2 P.M.), Children, Gt. Ormond-street (9 A.M. and 2 P.M.), Tottenham (Gynæcological, 2.30 P.M.), West London (2.30 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

FRIDAY 26th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.), Children, Gt. Ormond-street (9 A.M., Aural, 2 P.M.), Tottenham (2.30 P.M.), St. Peter's (2 P.M.), Central London Throat and Ear (Minor, 9 A.M., Major, 2 P.M.).

SATURDAY (27th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 A.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.), Children, Gt. Ormond-street (9 A.M. and 9.30 A.M.), West London (2.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

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MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

The Index and Title-page to Vol. I. of 1910, which was completed with the issue of June 25th, were given in THE LANCET of July 2nd.

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